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# **CRITICAL AREAS REPORT AND MITIGATION PLAN**

## **MILANO ISSAQUAH APARTMENTS**

### **ISSAQUAH, WASHINGTON**

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*Prepared For:*

Mr. Hossein Khorram  
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12224 NE 8<sup>th</sup> Street, Office  
Bellevue, *Washington* 98005

*Prepared By:*

Talasaea Consultants, Inc.  
Woodinville, Washington

18 September 2020  
(*Revised 15 September 2022*)

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18 September 2020  
(Revised 15 September 2022)

## EXECUTIVE SUMMARY

**REPORT NAME:** Critical Areas Report and Mitigation Plan

**CLIENT:** Mr. Hossein Khorram, Milano Issaquah Apartments

**SITE LOCATION:** 2300 Newport Way Northwest, Issaquah, Washington

**PROJECT STAFF:** Bill Shiels, Principal; David Teesdale, PWS, Senior Ecologist; Eva Parker, PLA, Senior Landscape Architect; Jacob Prater, Ecologist.

**PROPOSED PROJECT:** The proposed development is a four-story multi-family residential apartment building totaling approximately 75,445 sf of gross floor area. The four-story building includes 65 residential units including 4 affordable units and two (2) levels of underground parking. The underground parking includes 55 total parking stalls, 37 percent of which include electric vehicle charging stations, bicycle stalls, and motorcycle parking stations. Of the 75,445 sf of gross floor area, underground parking accounts for 21,476 sf, while residential units account for 34,656 net area.

**FIELD SURVEY:** Talasaea Consultants initially evaluated the Site on 7 June 2019, and existing conditions were confirmed on 27 July 2020 and 7 December 2021.

**CRITICAL AREAS DETERMINATION:** Talasaea Consultants identified one (1) wetland (Wetland B) and one (1) stream (Schneider Creek) on or adjacent to the Milano Issaquah Apartments property. Wetland B is a small (1,737 sf) Category III wetland located offsite to the northeast and requires a 75-foot standard buffer. Schneider Creek is a Class II stream with salmonids, requiring a 100-foot standard buffer. A single-family residence is located within the standard buffer of Schneider Creek, and the majority of the Schneider Creek buffer is vegetated and maintained as mown lawn associated with the single-family residence.

**HYDROLOGY:** Hydrology for Wetland B is supported, for the most part, by groundwater seeps adjacent to Schneider Creek. Wetland B may receive irregular hydrology input from Schneider Creek at a recurrence interval greater than 2 years.

**SOILS:** Soils in Wetland B consist of dark brown sandy and silty loams. Brown redoximorphic features were identified throughout the wetland both as concentrated matrices and pore linings.

**VEGETATION:** The majority of the onsite vegetation consists of mown grass lawn. A small portion of the Site is treed with Douglas fir (*Pseudotsuga menziesii*) and other native shrub and tree species.

**ASSESSMENT OF DEVELOPMENT IMPACTS:** There will be no direct impacts to Wetland B or Schneider Creek resulting from the proposed site development. Pursuant to IMC 18.10.650(D)(3)(d) – *Wetland Buffer Reduction with Buffer Vegetation Enhancement*, the project proposes a 15% reduction (781 sf) in the buffer of Wetland B which is appropriately mitigated for via restoration of the on-site buffer. Additionally, pursuant to IMC 18.10.790.D(5) – *Stream Buffer Reduction with Removal of Impervious Surface Area*, the standard stream buffer area may be reduced at a 1:1 ratio with the removal of existing, legally nonconforming impervious surface area located within the stream buffer area. A 25% reduction in the Schneider Creek buffer (including that contained within the reduced Wetland B buffer) is 7,126 sf while the impervious area within the 100 foot buffer is approximately 7,929 sf. Of the 11,905 sf of impervious surface found on the property, the Milano Issaquah Apartments development will remove the approximately 7,929 sf found within the standard Schneider Creek buffer closer to the stream than the proposed area of reduction, exceeding the requested reduced area amount by 803 sf. A total of 6,881 sf of Schneider Creek buffer will be temporarily impacted during construction. Fire, emergency, and construction access road will be limited to the 25% reduced stream/wetland buffers and the developable areas, and no native vegetation will be disturbed.

**PROPOSED MITIGATION:** Mitigation for buffer reductions and temporary construction impacts will be provided through the restoration of 20,361 sf of the reduced buffer areas located on the property. 14,871 sf of proposed

planting area is located outside of any existing tree canopy. This area will be planted with a variety of tree, shrub, and groundcover species. 4,048 sf of proposed buffer restoration area is located under an existing tree canopy and will be restored with shade-tolerant shrubs and groundcovers. No trees will be planted under the existing tree canopies. Lastly, 1,726 sf will be directly adjacent to Schneider Creek, and will be planted with water-tolerant, riparian tree, shrub and groundcover species. Habitat features, including down logs and stumps will be imported and placed within these areas and large woody debris will be placed in the buffer and will include stumps and down logs to help restore habitat structural diversity.

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## CHAPTER 1. INTRODUCTION

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### 1.1 Document Purpose

This report is the result of a critical areas investigation for the Milano Issaquah Apartments property located north of Newport Way NW and south of I-90 in Issaquah, Washington (**Figure 1**). Milano Issaquah Apartments property (referred to as “Site” or “Project Site” hereinafter) is the location of a proposed 104-unit apartment development with a recreational facility, public open space, trails, and associated parking.

The purpose of this report is to:

- 1) Identify, categorize, and describe existing environmental conditions, such as wetlands, streams, or other critical habitats and their respective buffers located on and adjacent to the Project Site;
- 2) Analyze potential impacts to critical areas resulting from the proposed development; and,
- 3) Describe a mitigation plan to offset impacts to critical areas buffers.

The report has been prepared to comply with the reporting requirements of Issaquah Municipal Code (IMC) 18.10.410. This report will provide and describe the following information:

- General Property Description;
- Methodology for Critical Areas Investigation;
- Results of Critical Areas Background Review and Field Investigations;
- Regulatory Review;
- Description of the Proposed Project;
- Assessment of Project Impacts to Critical Areas;
- Mitigation Sequencing;
- Proposed Mitigation Plan;
- Mitigation Design Elements;
- Site Specific Goals, Objectives, and Performance Standards;
- Construction Sequencing;
- Monitoring Plan;
- Maintenance and Contingency Plan;
- Long-term Maintenance; and
- Performance Bond.

### 1.2 Statement of Accuracy

Stream and wetland characterizations and ratings were conducted by trained professionals at Talasaea Consultants, Inc., and adhered to the protocols, guidelines, and generally accepted industry standards available at the time the work was performed. The conclusions in this report are based on the results of analyses performed by Talasaea Consultants and represent our best professional judgment. To that extent and within the limitation of project scope and budget, we believe the information provided herein is accurate and true to the best of our knowledge. Talasaea Consultants does not warrant any assumptions or conclusions not expressly made in this report or based on information or analyses other than what is included herein.

### 1.3 Staff Qualifications

Field investigations and evaluations were conducted by Talasaea staff including Bill Shiels, Principal; David Teesdale, PWS, Senior Ecologist; and (former Talasaea staff member) Jacob

Prater, Ecologist. Bill Shiels has a Bachelor's Degree in Biology from Central Washington University and a Master's Degree in Biological Oceanography from the University of Alaska. He has over 40 years of experience in wetland delineations and mitigations. David Teesdale has a Bachelor's Degree in Biology from Grinnell College, Iowa, and a Master's Degree in Ecology from Illinois State University. He has over 20 years of experience in wetland delineations and biological evaluations. Jacob Prater (former Talasaea staff member) has a Bachelor's Degree in Environmental Studies with a focus in Ecological Systems from Seattle University and a Master's Degree in Systems Ecology from the University of Montana. He has three (3) years of experience in ecological science and research and one (1) year of experience in wetland delineations and mitigation.

## **CHAPTER 2. GENERAL PROPERTY DESCRIPTION AND LAND USE**

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### **2.1 Project Location**

The Milano Issaquah Apartments property is located at 2300 Newport Way NW in the City of Issaquah, Washington (**Figure 1**). The property is an irregularly shaped parcel (King County tax parcel 2024069057) approximately 1.33 acres in size (**Figure 2**). The Public Land Survey System location of the property is the SW ¼ of Section 20, Township 24N, Range 6E, Willamette Meridian (W.M.).

### **2.2 General Property Description**

The Site is currently accessed from a paved driveway off Newport Way NW that provides access to the existing residence located on the Site (**Sheet W1.0 of Appendix A**). Several storage sheds are also found near the existing residence, and the remainder of the Site is composed of maintained lawn. Schneider Creek is partially located on the southeastern portion of the Site.

The Site is bounded to the north by the Revel Issaquah Apartment Complex, to the west and south by Newport Way NW, and to the east by Schneider Creek and the Anthology Apartment Complex.

## **CHAPTER 3. METHODOLOGY**

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The critical areas analysis of the Site involved a two-part effort. The first part consisted of a preliminary assessment of the Site and the immediate surrounding area using published environmental information. This information included:

- 1) Wetland, soils, and wildlife information from resource agencies;
- 2) Critical areas map information from the City of Issaquah;
- 3) Orthophotography;
- 4) LiDAR terrain data; and,
- 5) Relevant studies completed or ongoing in the vicinity of the Site.

The second part consisted of a Site investigation where direct observations and measurements of existing environmental conditions were made. Observations included plant communities, soils, and hydrology. This information was used to help characterize the existing conditions of the property, and to identify and delineate critical areas (See **Section 3.2 – Field Investigation** below).

### 3.1 Background Data Reviewed

Background data reviewed included the following sources:

- US Fish and Wildlife Service (USFWS) Wetlands Online Mapper (National Wetlands Inventory (<http://www.fws.gov/wetlands/Data/Mapper.html>));
- Natural Resources Conservation Service (NRCS) Web Soil Survey ([www.websoilsurvey.nrcs.usda.gov/app/](http://www.websoilsurvey.nrcs.usda.gov/app/));
- City of Issaquah Critical Areas Maps and Stream Assessment Documentation;
- City of Issaquah Critical Areas Code;
- King County, Lake Sammamish Kokanee Work Group;
- StreamNet database, 2020 ([www.streamnet.org](http://www.streamnet.org));
- SalmonScape database, 2020 ([www.wdfw.wa.gov/mapping/salmonscape/databases](http://www.wdfw.wa.gov/mapping/salmonscape/databases));
- State of Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database (<http://wdfw.wa.gov/mapping/phs/>);
- Orthophotography from Earth Explorer ([earthexplorer.usgs.gov](http://earthexplorer.usgs.gov)), NETR Online Historic Aerials ([www.historicaerials.com](http://www.historicaerials.com)), and LIDAR information from the Puget Sound LIDAR Consortium ([pugetsoundlidar.ess.washington.edu](http://pugetsoundlidar.ess.washington.edu)).

### 3.2 Field Investigation

Talasaea Consultants evaluated the Site initially on 7 June 2019 and 27 July 2020, and again on 7 December 2021 to confirm wetland ratings. Wetlands were identified using the routine methodology described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0* (Environmental Laboratory 2010). Wetlands were rated using the *Washington State Wetland Rating System for Western Washington* (Hruby 2014), and buffers assigned according to Issaquah Municipal Code (IMC) 18.10.620.

Plant species were identified according to the updated taxonomy of Hitchcock and Cronquist (Hitchcock & Cronquist, 2018). Taxonomic names were updated, and plant wetland status was assigned according to the *North American Digital Flora: National Wetland Plant List, Version 2.4.0* (Lichvar, 2016). Wetland classes were determined with the U.S. Fish and Wildlife Service's system of wetland classification (Cowardin, *et al.* 1979). Vegetation was considered hydrophytic if greater than 50% of the dominant plant species had a wetland indicator status of facultative or wetter (*i.e.*, facultative, facultative wetland, or obligate wetland).

Wetland hydrology was determined based on the presence of hydrologic indicators listed in the Corps' Regional Supplement. These indicators are separated into Primary Indicators and Secondary Indicators. To confirm the presence of wetland hydrology, one Primary Indicator or two Secondary Indicators must be demonstrated. Indicators of wetland hydrology may include, but are not necessarily limited to: drainage patterns, drift lines, sediment deposition, watermarks, stream gauge data and flood predictions, historical records, visual observation of saturated soils, and visual observation of inundation.

Soils were considered hydric if one or more of the hydric indicators listed in the Corps' Regional Supplement were present. Indicators include presence of organic soils, reduced, depleted, or gleyed soils, or redoximorphic features in association with reduced soils.

An evaluation of patterns of vegetation, soil, and hydrology was made along the interface of wetland and upland. Wetland boundary points were delineated, flagged, and surveyed. **Appendix B** contains data forms prepared by Talasaea for representative locations in both upland and wetland locations. These data forms document the vegetation, soils, and hydrology information that aided in the wetland boundary determination. Wetlands were classified according to the rating system and criteria contained in the Wetland Rating System for Western Washington (Hruby, 2014). Wetland rating forms are included in **Appendix C**.

## CHAPTER 4. RESULTS

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### 4.1 Analysis of Existing Information

This section describes the results of our in-house research and field investigations. For the purpose of this report, the terms “vicinity” or “study area” describe an area approximately 300 feet around the Project Site (**Figure 2**).

#### 4.1.1 National Wetlands Inventory (Issaquah Quadrangle)

The USFWS NWI map shows one palustrine scrub-shrub wetland that is seasonally flooded (PSSC) northeast of the Site and one Riverine intermittent, streambed class system (R4SBC) located east of the Site (**Figure 3**).

#### 4.1.2 Natural Resources Conservation Service Soils Data

The NRCS Web Soil Mapper identifies two (2) soil types on the Site (**Figure 4**). These are Kitsap silt loam (partially hydric) and Everett gravelly sandy loam (not hydric).

The Kitsap series is made up of moderately well drained soils that formed in glacial lake deposits, under a cover of conifers and shrubs. These soils are on terraces and strongly dissected terrace fronts. The surface layer and subsoil are very dark brown and dark yellowish-brown silt loam.

Everett gravelly sandy loam is a nearly level to undulating, somewhat excessively drained soil. It forms in gravelly glacial outwash under conifers. The surface is typically very dark brown gravelly sandy loam. The subsoil is dark yellowish-brown gravelly sandy loam.

#### 4.1.3 City of Issaquah Critical Areas Information

The City of Issaquah online GIS viewer does not have any data concerning wetlands within the vicinity of the Site but does show Schneider Creek on the eastern portion of the property (**Figure 5**). Schneider Creek is rated as a City of Issaquah Class 2S (salmonid-bearing) stream. This rating is confirmed by visual sightings of cutthroat trout in the creek by scientists from The Watershed Company (2007) and visual sightings of fish (not identified to genera) by Talasaea Consultants (2013, 2014, and 2015). Schneider Creek also satisfies the criteria as a Type F water under the permanent water typing rule (WAC 222-16-030).

#### 4.1.4 WDFW Priority Habitats and Species

WDFW’s Priority Habitat and Species (PHS) online mapping program shows the Site is in the same township (36 square mile area) of a Townsend’s big-eared bat (*Corynorhinus townsendii*) communal roost area. Townsend’s big-eared bat is a Federal Species of Concern. Townsend’s big-eared bats typically roost in caves, mines, hollow trees, and built structures (Woodruff 2005). The nearest mines are remnant coal mine operations located approximately 3 miles away to the

south and southwest. No hollow trees were observed on the Site. Townsend's big-eared bats are not known to be present in the built structures onsite.

Townsend's big-eared bat is also a State Candidate for listing. The PHS area for Townsend's big-eared bat is very large and encompasses a 36 square mile area including most of the City of Issaquah and the southern ½ of the City of Sammamish. If discovered, appropriate measures would be taken to exclude bats from the structure prior to demolition. The proposed development will have *no effect* on Townsend's big-eared bat.

The PHS online map also shows one (1) wetland mapped northeast of the Site and extending over the developed areas associated with the Anthology and Revel Apartment complexes. However, the accuracy of this PHS data is questionable due to the illustrated location of the wetland over developed areas.

Schneider Creek is not mapped by PHS and, therefore this database contains no information concerning fish usage of the stream.

#### **4.1.5 King County, Lake Sammamish Kokanee Work Group**

The Lake Sammamish Kokanee Work Group identified Schneider Creek in their 2014 report as providing spawning habitat for Lake Sammamish kokanee in an approximately 175-foot reach north of West Lake Sammamish Parkway, approximately 1,800 feet downstream of the Site.

#### **4.1.6 StreamNet and SalmonScape Databases**

SalmonScape maps Schneider Creek as an ephemeral or intermittent creek. Schneider Creek is not mapped by StreamNet. Neither service provides information concerning fish usage of Schneider Creek.

### **4.2 Analysis of Existing Site Conditions**

Talasaea Consultants identified one (1) wetland (Wetland B) and one (1) stream (Schneider Creek) on or adjacent to the Site (**Sheet W1.0 of Appendix A**). The OHWM for Schneider Creek and the boundary of Wetland B were determined and delineated by Talasaea Consultants on 27 July 2020. Wetland B was classified according to the rating system and criteria contained in the Wetland Rating System for Western Washington (Hruby, 2014). These onsite features are described in the following sections.

#### **4.2.1 Wetland B**

Wetland B is an approximately 1,737 sf palustrine forested slope wetland located entirely offsite to the east of the property. Wetland B is vegetated with black cottonwood (*Populus balsamifera*), Oregon ash (*Fraxinus latifolia*), red alder (*Alnus rubra*), black twinberry (*Lonicera involucrata*), lady fern (*Athyrium filix-femina*), and red-osier dogwood (*Cornus sericea*).

Hydrology for Wetland B is supported, for the most part, by groundwater seeps along the bank of Schneider Creek. However, Schneider Creek may contribute hydrology to small portions of the wetland on an irregular basis. Based on channel characteristics, it does not appear that this overbank flooding occurs on a two-year recurrence interval, nor would it affect more than 10% of the wetland area and thus is not classified as a riverine wetland. Soils were saturated at the surface during the June 2019 site visit, and were generally composed of a dark brown (10YR 2/1 & 10YR 3/1) loam with areas of silt loam (10YR 2/2 & 10YR 3/3, **Appendix B**).

Wetland B scored 7 points for Water Quality Functions, 4 points for Hydrologic Functions, and 6 points for Habitat Functions (**Appendix C**). The Total Score for Functions is 17, which satisfies the criteria for a Category III wetland per IMC 18.10.620. Per IMC 18.10.640.C, Category III wetlands with a Habitat Score of 6 require 75-foot standard buffers.

#### 4.2.2 Schneider Creek

Schneider Creek is a small fish-bearing stream located partially on the southeastern portion of the property and offsite to the east (**Sheet W1.0 of Appendix A**). The drainage basin of Schneider Creek is approximately 155 acres in size and is located in the hills southwest of the City limits of Issaquah. The stream originates in a portion of unincorporated King County between SE 60<sup>th</sup> Street and SE 62<sup>nd</sup> Place. It flows through a wooded ravine for approximately 3,000 feet to a 2.5-foot-diameter round concrete culvert under Newport Way NW, which is scheduled to be replaced with a fish-passable culvert by the City of Issaquah. The outfall of this culvert is perched onsite by approximately two feet and represents a barrier to fish migration (**Photo 1**). From Newport Way NW, the creek flows in a northerly direction to the north



**Photo 1.** Perched culvert at Newport Way NW, Oriented Southwest. property boundary.

It exits the property near the northeast corner of the Site. Schneider Creek then flows in a northwesterly direction for approximately 430 feet to a 3.5-foot-diameter corrugated metal culvert under I-90 and West Lake Sammamish Parkway (**Photo 2**). After passing under I-90 and

West Lake Sammamish Parkway, Schneider Creek flows in a northwesterly direction for approximately 650 feet to Lake Sammamish.



**Photo 2.** Schneider Creek in I-90 culvert, Oriented South.

Approximately 95 feet of Schneider Creek flows through the Project Site. The channel width of Schneider Creek in this section is approximately eight feet.

The culvert under I-90/West Lake Sammamish Parkway was initially evaluated by Parametrix (2003) as being impassible by fish<sup>1</sup>. Later studies by the Watershed Company (2007)<sup>2</sup> determined that the culvert was likely fish passible. The presence of salmonids was confirmed by the Watershed Company in 2007 through electro-fish sampling. All of the fish caught and identified by the Watershed Company consisted of cutthroat trout (*Oncorhynchus clarkii*). The Watershed Company further posited that the cutthroat trout were not an isolated population and that it was likely that cutthroat trout from the north side of I-90 could easily migrate onto the Site. Finally, the Watershed Company posited the possibility of Coho salmon (*Oncorhynchus kisutch*) also being able to access Schneider Creek on the Site, although no evidence of Coho presence was provided in their report.

We reviewed the existing stream conditions first in 2013 and again in 2015 and noted the presence of fish from the upstream end of the I-90/West Lake Sammamish Parkway culvert upstream to the WSDOT NGPA area. The fish ranged in size from fry to fingerlings (approximately 3 to 5 inches long). We were not able to determine the species of the fish observed, but were able to determine that they were salmonids based on shape and behavior. The fingerlings were likely cutthroat trout and the fry were likely coho salmon.

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<sup>1</sup> Parametrix. 2003. *Stream Inventory and Habitat Evaluation Report Including Issaquah Creek, East and North Forks of Issaquah Creek, Tibbett's Creek, and the Shoreline of Lake Sammamish.*

<sup>2</sup> The Watershed Company. 2007. *Schneider Creek Stream and Buffer Enhancement Plan.*

Per IMC 18.10.780, Schneider Creek satisfies the requirements for characterization as a Class 2 Stream with Salmonids. Per IMC 18.10.785(C), Class 2 Streams with salmonids have a 100-foot standard buffers and an additional 15-foot building setback.

#### 4.2.3 Uplands and Buffers

Upland vegetation on the Site and in the buffers of Schneider Creek is currently maintained as lawn. Some trees are present within the lawn areas, including Douglas fir (*Psuedotsuga menziesii*) and western redcedar (*Thuja plicata*).

#### 4.2.4 Functional Value Analysis of the Schneider Creek Riparian Buffer

There are currently no standard methodologies for assessing buffer function. However, we have extensively reviewed scientific literature on buffers and have developed a qualitative methodology for assessing their functions and services with respect to riparian critical areas. The functions assessed include Shade/Temperature Control, Woody Debris Recruitment, Water Quality Improvement, Hydrologic Functions, and Habitat Value (**Table 1**). Only the onsite portion of the riparian buffer was assessed.

**Table 1.** Functional Value Analysis - Existing Buffer Condition

Function	Shade/ Temperature Regulation	Woody Debris Recruitment	Water Quality Improvement	Hydrologic Functions	Habitat Value
<b>Existing Conditions</b> (Rating & Explanation for Rating)	<b>Moderate Low:</b> The majority of the buffer for the onsite reach of Schneider Creek lacks shrub or tree canopy coverage. The major vegetative coverage is provided by grasses that are frequently mowed. Sparse individual conifer trees are present in some areas.	<b>Low:</b> The major vegetative coverage for Schneider Creek is lawn. There is little opportunity to recruit woody debris onsite. If onsite trees were to fall in the lawn areas, it is likely that they would be removed and not be recruited.	<b>Moderate Low:</b> The majority of the stream buffer is composed of maintained lawn. Fertilizers and/or herbicides may be used to maintain this area of lawn, which would have a negative effect on Water Quality. Also, Newport Way NW is adjacent to the Site and may contribute pollutants that are harmful for fish.	<b>Moderate Low:</b> The buffer for Schneider Creek does not attenuate or slow water velocity of flood waters due to the lawn areas onsite. A well-vegetated buffer would slow water velocities much more than the existing condition.	<b>Low:</b> The only onsite portion of the Schneider Creek buffer that provides habitat is the treed areas of the Site. However, the understory of the treed areas is composed of lawn and the buffer lacks diverse vegetative structure.

#### *Shade and Temperature Regulation*

The shade provided to a stream by a well-vegetated buffer is important for maintaining water temperatures below the life tolerance limits of salmonids, particularly threatened or endangered species of salmon. Research has shown that a 40-foot wide band of trees is able to sufficiently

shade streams with flows up to 5 cfm in mid-July. Taller trees or trees on slopes provide even more protection. The existing onsite portion of buffer along Schneider Creek lacks shrub or tree canopy coverage over 75 percent of the total buffer area. We determined that the ability of the existing buffer to provide shading and temperature control within the project area to be **Moderate Low**.

### ***Woody Debris Recruitment***

Recruitment of woody debris is vital to maintaining the health of a stream ecosystem. Woody debris provides structural complexity to the riparian system that, in turn, provides habitat for many species of animals. Aquatic macroinvertebrates will cling to and feed off of the woody debris. Subsequently, these aquatic macroinvertebrates become prey items for fish, birds, and mammals. Additionally, larger pieces of woody debris can modify stream bed conditions and provide spawning and rearing habitat for salmonids. Woody debris can prevent excessive stream bed scouring by reducing the energy of water flow, or it can modify the direction of stream flow by creating new channels.

A majority of the onsite portion of the Schneider Creek riparian buffer currently lacks tree or shrub cover that would supply the stream with a source of woody debris, large or small. Eleven (11) trees are located within the onsite portion of the buffer, but aerial coverage only amounts to 27 percent onsite. The understory vegetation within treed areas is composed entirely of maintained lawn and it is likely that even if these trees were to fall, they would be removed from the buffer to maintain the character of the Site. Overall, we determined that the ability of the existing buffer to provide woody debris recruitment is **Low**.

### ***Water Quality Improvement***

Wetlands are documented as providing water quality functions vital to an ecosystem. However, increased inputs of sediments, nutrients, heavy metals, and toxic organics can quickly overwhelm a functioning wetland and degrade its relative value to the environment and to society. Buffers offer water quality improvement functions that are vital to protecting the health and functioning of wetlands and streams. They do this by “pre-treating” surface water through removal of sediments, nutrients, and sequestration of heavy metals and toxic organics. The factors that provide water quality improvements are the amounts and types of existing buffer vegetation and the width of the buffer, itself. Wide and well-vegetated buffers can retain water over longer periods of time allowing sediments to drop out and sequestration of nutrients, heavy metals, and toxic organics. Wider buffers provide this service at higher levels of efficacy.

The onsite portion of the Schneider Creek buffer is currently maintained as mowed lawn. This grass, even as mowed stubble, will perform some water quality improvements, namely, the removal of sediments. The ability to remove heavy metals, nutrients, and toxic organic compounds is dependent on the residence time of surface water flowing through the buffer and the ability of the various grass species to sequester these pollutants. However, there appears to be no major sources of these pollutants resulting from the residential land use. We determined that the ability of the buffer to perform water quality functions is **Moderate Low**.

### ***Hydrology Functions***

Another important function of buffers is to provide hydrologic support to the wetland or stream through infiltration of water into groundwater.

The onsite portion of the buffer for Schneider Creek is able to provide some limited hydrologic support to the stream. There are few, if any, depressional areas within the existing buffer that may collect and retain water that could be used to support stream hydrology. We determined that the ability of the existing buffer to provide hydrology functions is **Moderate Low**.

### ***Habitat Value***

Between aquatic lands (wetlands, streams, *etc.*) and upland is a dynamic zone that provides considerable habitat potential for a variety of birds, mammals, amphibians, and insects. Plant species diversity, patterns of vegetation, and structural diversity are important in maintaining high levels of habitat potential for wildlife. Dead or dying trees, snags, and down woody material also provide habitat potential within the buffer.

The majority of the onsite portion of buffer for Schneider Creek is comprised of frequently mowed grasses. There is little opportunity for woody species (trees or shrubs) to become established. The buffer contains no habitat features, such as down woody material, snags, stumps, or other similar structures. We determined that the ability of the existing buffer to provide habitat is **Low**.

## **CHAPTER 5. REGULATORY REVIEW**

### **5.1 City of Issaquah Critical Areas Regulations**

Wetland B, Schneider Creek, and their associated buffers are regulated by Chapter 18.10 of IMC. Wetland B was evaluated, rated, and its buffer was determined according to the requirements of IMC 18.10.620. Schneider Creek was classified according to IMC 18.10.780. **Table 2** below provides a regulatory summary of the critical areas on or adjacent to the Site pursuant to IMC Chapter 18.10.

**Table 2.** Critical Areas Regulatory Summary

<b>Critical Area</b>	<b>Cowardin Classification<sup>1</sup></b>	<b>Category<sup>2</sup></b>	<b>Standard Buffer<sup>3</sup></b>
Wetland B	PFO	Category III	75 feet
Schneider Creek	NA	Class 2 w/Salmonids	100 feet

<sup>1</sup> Based on Cowardin classification system (Cowardin, *et al.* 1979)

<sup>2</sup> Wetlands classified according to IMC 18.10.620 and streams classified according to IMC 18.10.780.

<sup>3</sup> Standard buffer widths according to IMC 18.10.640(C) and IMC 18.10.785(C).

Development on sites that have wetlands, streams, or associated buffers shall also incorporate where applicable the performance standards provided in 18.10.660, which are listed below:

- A. Direct all lights away from the buffers, and minimize lighting intensity within the vicinity of the wetland buffers;
- B. Minimize noise impacts in the vicinity of the buffers by concentrating open space activities away from the buffers;
- C. Direct toxic runoff from impervious surfaces to stormwater treatment facility, prior to discharge to the buffer;
- D. Discharge treated stormwater to dispersion trenches to prevent channelized flows;
- E. Limit the use of pesticides, insecticides and fertilizer within 150 feet of critical area boundaries; and

- F. Install a split-rail or similar fence at the buffer boundary to prevent human/pet intrusions into the buffers.

The project will implement several of the mitigation measures listed above as follows (**Table 3**):

**Table 3.** Summary of Proposed Mitigation Measure 1 Options

<b>Examples of Disturbances</b>	<b>Measures to Minimize Impacts</b>
<b>Lights</b>	Street and security lighting will be placed so that illumination is directed away from the Wetland B, Schneider Creek, and their associated buffers.
<b>Noise</b>	Planting of dense vegetation specified for mitigation of light-related impacts will also ameliorate impacts due to noise. Commercial compactors and garbage container bays will be located away from the wetland and stream buffer areas, or confined within masonry walls.
<b>Toxic Runoff</b>	Operational covenants will stipulate that no pesticides or herbicides will be used within 150 feet of the wetland or stream buffer (the use of herbicides to control non-native, invasive species in the course of routine mitigation monitoring and maintenance will be allowed as described in <b>Chapters 10 and 12</b> ). Road runoff will be collected and transferred to the project's onsite stormwater treatment and detention facilities. No direct discharge of road runoff or untreated stormwater runoff into the wetlands, streams, or their buffers.
<b>Stormwater runoff</b>	All road runoff will be detained and treated by a water quality vault for enhanced treatment. The treated and un-detained runoff will be pumped to a detention vault. The mitigated flows gravity flow to a birdcage outfall system in the public easement in the Revel Issaquah property, northeast of the Site. Runoff from the 10' wide pedestrian pathway along the east of the site will sheet flow disperse runoff towards the buffer in the east. This sheet flow runoff will support the base flow of Schneider Creek throughout the year.
<b>Change in Water Regime</b>	The project proposes a detention facility to mitigate the onsite developed flows. The onsite flows will be over detained to account for the new impervious surfaces. The mitigated runoff from the detention facility will be conveyed to a GULD approved water quality vault for enhanced treatment. This will ensure that the existing water regime is not significantly disrupted by the proposed development.
<b>Pets and Human Disturbances</b>	Buffer areas will be permanently protected by fencing to discourage human and pet intrusions into the buffer, and the buffer areas will be placed in a separate Natural Growth Protection Easement (NGPE), per City requirements.

## 5.2 State and Federal Regulations

Wetlands and streams on the Site are subject to applicable State and Federal regulations. Wetland impacts are regulated at the Federal level by Sections 404 and 401 of the Clean Water Act. The U.S. Army Corps of Engineers (Corps) is responsible for administering compliance with Section 404 via the issuance of Nationwide or Individual Permits for any fill or dredging activities within wetlands under Corps jurisdiction. Any project that is subject to Section 404 permitting is also required to comply with Section 401 Water Quality Certification, which is administered by the Washington State Department of Ecology (WDOE). No direct impacts to wetlands, streams, or other “waters of the U.S.” are proposed for the current Site development plan. Therefore, the project will not need to apply for any Section 404 Nationwide or Individual Permits or Section 401 Water Quality Certification.

This also applies to the Washington Department of Fish and Wildlife which issues hydraulic project approvals (HPAs) for projects affecting State waters. Although no direct impacts to Schneider Creek are proposed, an HPA will be required for the extension of the existing Lock and Load retaining wall which will extend over the existing culvert under Newport Way NW. The client proposes to exercise a similar level of planning and care taken during the construction of the Anthology Apartments to the South.

## CHAPTER 6. PROPOSED DEVELOPMENT & IMPACTS

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### 6.1 Project Description

The proposed development is a four-story multi-family residential apartment building totaling about 75,445 sf of gross floor area. The four-story building includes 65 residential units including 4 affordable units and two (2) levels of underground parking. The underground parking includes approximately 55 total parking stalls, 34 percent of which have access to electric vehicle charging stations, bicycle stalls and motorcycle parking stations. Of the 75,445 sf of gross floor area, underground parking accounts for approximate 21,476 sf, while residential units account for the 34,656 sf net area.

The project will qualify for *Built Green*, *LEED* certifications or similar nationally recognized certifications through the use of approximately 156 roof top solar panels to generate a 66,082 KWh over year. For approximately half of the year the Milano Issaquah Apartments will contribute energy directly to the grid. The rooftop solar panels, which are completely hidden from Newport Way NW, will have a carbon offset comparable to the planting of 29,997 trees, the retention of 1.415 barrels of oil per year and approximately 603,161 lbs of coal, the offset of 60,232 miles driven per year, and the retention of 499 acres of forest over 25 years.

The Milano Issaquah Apartments will retain the adjacent native growth areas, increase the number of trees on the property by 25 trees over the existing amount, and are proposing a full restoration of the on-site buffer of Schneider Creek and its associated wetlands. Compared to the current condition of the property, the Milano Issaquah Apartments will provide a major restoration that results in a wildlife sanctuary and habitat corridor.

### 6.2 Stormwater Management

Stormwater generated onsite will be treated by a water quality vault for enhanced treatment. The treated and un-detained runoff will be pumped to a detention vault. The mitigated flows gravity flow to a birdcage outfall system in the public easement in the Revel Issaquah property, northeast

of the Site. Runoff from the 10' wide pedestrian pathway along the east of the site will sheet flow disperse runoff towards the buffer in the east. This sheet flow runoff will support the base flow of Schneider Creek throughout the year. For more information on stormwater, see the Milano Stormwater Approach document prepared by Core Design, Inc. dated April 2020. All stormwater facilities will follow the standards from the 2017 City of Issaquah Addendum to the 2014 Department of Ecology Stormwater Management Manual for Western Washington.

All work adjacent to the Schneider Creek buffer will employ erosion control and water quality protection BMPs per an approved Temporary Erosion and Sedimentation Control plan (TESCP) and Stormwater Pollution Prevention Plan (SWPPP). Please refer to the Final Drainage Report prepared by Core Design, Inc. for more information.

### **6.3 Assessment of Development Impacts**

#### **6.3.1 Mitigation Sequencing**

Per IMC 18.10.490, mitigation sequencing must be employed on sites containing critical areas to avoid impacting the critical areas to the greatest extent possible, or to minimize impacts if the impacts are unavoidable. Mitigation sequencing is as follows:

*1. Avoid impacts altogether by not taking a certain action or parts of an action;*

The proposed site plan has been undergone numerous iterations in order to avoid direct impacts to critical areas, and to minimize indirect impacts to critical area buffers. All impacts and/or reductions of wetland buffers are necessary to provide affordable housing, open space, and innovative development techniques pursuant to RCW 36.70A.090 and CIDDS Chapter 10.

*2. Minimize impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;*

The most recent site plan iteration has reconsidered ingress, egress and emergency vehicle access in order to avoid additional impacts to critical area buffers. Site plan iterations have results in a decreased unit total.

*3. Rectify impacts by repairing, rehabilitating, or restoring the affected environment;*

Impervious surfaces within the Schneider Creek buffer will be removed, and the areas will be restored with native vegetation. The existing lawn will be removed from the on-site wetland buffer and the area will be restored with trees, shrubs, and groundcover (**Sheet W2.1 of Appendix A**).

*4. Compensate for the impact by replacing, restoring, creating, enhancing or providing substitute resources or environments;*

In order to mitigate for wetland buffer reductions and temporary impacts, the project will restore the on-site wetland buffer to the maximum extent possible, and mitigate for any remaining impacts through Wetland Mitigation Banks (IMC 18.10.720(I)).

5. *Monitor the impact and the compensation projects and taking appropriate corrective measures.*

A monitoring plan is outlined in Chapter 9.

### 6.3.2 Buffer Modifications

The project proposes to reduce the buffers of Wetland B and Schneider Creek (**Sheet W2.0 & W2.0a of Appendix A**). Reductions will be accomplished through appropriate mitigation measures (**Sheet W2.1 of Appendix A**). A minimum developable area is required in order to accommodate all the required project elements, including buildings, parking, utilities, and open space. The economic feasibility of the project will require that the buffers of Schneider Creek and Wetland B be reduced according to the standard allowances described within IMC 18.10.790 and 18.10.650.

#### 6.3.2.1 Wetland B Buffer Reduction

Pursuant to IMC 18.10.650(D)(3)(d) – *Wetland Buffer Reduction with Buffer Vegetation Enhancement*, standard wetland buffer widths may be reduced when enhancement of the existing wetland buffer vegetation would demonstratively improve water quality and habitat functions. Being that a portion of the wetland buffer located on the Revel property to the north is covered with impervious surfaces, and on the Milano property by mowed lawn, the buffer may benefit from Restoration. The Client will reduce the buffer of Wetland B from its 75-foot standard buffer to a 63.75-foot reduced buffer. This width reduction will result in a net loss of 781 sf of on-site wetland buffer located outside of the reduced stream buffer area. Per 18.10.650(D)(3)(b), A wetland buffer may qualify for a buffer reduction under this section when:

(1) *The wetland buffer proposed to be enhanced/reduced meets all of the following characteristics:*

(A) *More than forty (40) percent of the buffer area is covered by nonnative and/or invasive plant species; or*

Approximately 91% of the on-site wetland buffer is covered with maintained (mowed) lawn. The remaining percentage is occupied by black cottonwood (*Populus balsamifera*).

(B) *Tree and/or shrub vegetation cover less than twenty-five (25) percent of the buffer area; and*

The entire wetland buffer found on-site is vegetated with maintained lawn and black cottonwood. There is no shrub layer, thus, only tree cover is quantified. Survey of on-site tree canopy indicates that 406 sf of the total 7,130 sf of on-site wetland buffer is covered by tree canopy (approximately 5%). This is well below the 25% threshold required per IMC 18.10.650D3(b).

(C) *The wetland buffer has slopes of less than twenty-five (25) percent.*

Based on LiDAR analysis, the slope of the wetland buffer is approximately 5% on the property.

(2) *The proposed development incorporates performance standards to minimize the impacts of the proposed land use, consistent with IMC 18.10.660.*

These performance standards are discussed in Chapter 5 above.

Details pertaining to wetland buffer restoration are outlined in Chapter 7.

#### **6.3.2.2 Schneider Creek Buffer Reduction**

Pursuant to IMC 18.10.790.D(5) – *Stream Buffer Reduction with Removal of Impervious Surface Area*, the standard stream buffer area may be reduced at a 1:1 ratio with the removal of existing, legally nonconforming impervious surface area located within the stream buffer area. A 25% reduction in the Schneider Creek buffer would require the removal of 7,929 sf impervious surface. The additional requirements of IMC 18.10.790.D(5) and the projects compliance with these requirements is discussed in further detail below:

- *the removed impervious area shall be located closer toward the stream than the proposed buffer reduction area;*

There is approximately 11,905 sf of impervious surface found on the property. The Milano Issaquah Apartments development will remove the approximately 7,929 sf found within the standard Schneider Creek buffer (**Sheet W1.0 of Appendix A**). These impervious surfaces include a septic tank drain field, abandoned fuel tanks, and the existing residence and its associated drive aisles which are located as close as 20 feet from Schneider Creek. Impervious surfaces removed will exceed the required amount by 803 sf.

- *The removed impervious area shall be restored with native vegetation, consistent with the stream buffer enhancement plan requirements in subsection (D)(4)(c)(3) of this section; and*

On-site mitigation is outlined in Chapter 7 below.

- *Existing site characteristics, including buffer vegetation, slopes, etc., and proposed development shall be considered in determining the location of the allowed reduced buffer area.*

Mitigation will be specific to the characteristics of the Site (**Sheet W2.1 of Appendix A**).

#### **6.3.3 Temporary Construction Impacts to Buffers**

Temporary impacts associated with the removal of impervious surfaces and associated restoration, as well as impacts associated with construction, fire and emergency access will occur within the outer 25% of the Schneider Creek buffer (**Sheet W2.0 of Appendix A**). A total of 6,881 sf of Schneider Creek buffer will be temporarily impacted during construction. No native vegetation will be disturbed to construct the temporary access, and impacts to vegetation will be limited to lawn areas.

All temporarily disturbed buffer areas on the project Site shall be restored through the decompaction of soils, planting of native trees and shrubs to prevent erosion or re-establishment of invasive species, and provide increased species structure and diversity over existing conditions (**Sheets W2.0 and W2.1 of Appendix A**). In addition, discharge of clean roof runoff

will be routed to a dispersion trench located outside of the buffer for Schneider Creek to support buffer hydrology.

## CHAPTER 7. PROPOSED MITIGATION PLAN

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### 7.1 City of Issaquah Policies and Guidance

The mitigation proposed for critical areas impacts is in accordance with Issaquah Municipal Code, Chapter 18.10 - *Environmental Protection*.

### 7.2 Proposed Mitigation

Mitigation for project impacts, including buffer reduction and temporary construction related impacts, will occur as buffer restoration. Mitigation areas are depicted on **Sheet W2.1 of Appendix A**. The proposed mitigation measures are described below.

#### 7.2.1 Wetland and Stream Buffer Restoration

Buffer restoration will occur in the entirety of the reduced wetland and stream buffers found on the property. These areas currently provide minimal buffer functions for Schneider Creek and Wetland B. Restoration activities will first include the demolition of the existing residence and associated hardscapes within the reduced buffer area (**Sheet W2.0 of Appendix A**). After temporary construction access and fire access is no longer required, soils will be de-compacted mechanically before the placement of topsoil and mulch. Plant species selected for introduction into this area include a variety of native woody deciduous and coniferous species.

A total of 20,645 sf will be restored and will be planted based on three distinct planting plans (**Sheet W2.1 and W5.0 of Appendix A**). A total of 14,871 sf of proposed planting area is located outside of any existing tree canopy. This area will be planted with a variety of tree, shrub, and groundcover species. Approximately 4,048 sf of proposed buffer restoration area is located under an existing tree canopy and will be restored with shade-tolerant shrubs and groundcovers. No trees will be planted under the existing tree canopies. Lastly, 1,726 sf will be directly adjacent to Schneider Creek, and will be planted with water-tolerant, riparian tree, shrub, and groundcover species.

Habitat features, including down logs and stumps will be imported and placed within these areas. These features provide shelter for small mammals and the slow decay of woody features contributes nutrients to the buffer area (**Sheet W5.0 of Appendix A**).

Restoration of the Schneider Creek buffer will result in an improved condition over existing conditions. The Schneider Creek buffer is currently devoid of woody vegetation except for the eight (8) existing trees within the reduced buffer area. Large woody debris will be placed in the buffer and will include stumps and down logs to help restore habitat structural diversity. The buffer will be planted with a mix of native evergreen and deciduous species.

The shade provided by the new vegetation will help maintain cool water temperatures and supply needed cover for any fish within the stream. Additionally, the new stream buffer vegetation will provide organic input necessary for a healthy aquatic macroinvertebrate population, which, in turn, helps support juvenile and adult fish populations. The macroinvertebrate population of a stream is an indicator of general stream health and its ability to support fish, including anadromous fish.

### 7.3 Mitigation Design Elements

#### 7.3.1 Habitat Features

Down logs and stumps will be incorporated into the stream buffer mitigation area to provide ecologically important habitat features for wildlife. All down woody material shall be coniferous species (western red cedar, Douglas fir, western hemlock, or Sitka spruce) obtained from the project Site or imported if necessary (**Sheet W4.0 of Appendix A**).

Down logs and stumps provide the slow release of nutrients as the wood decays, and provides cover for amphibians, small mammals, and other wildlife. Boulders recovered from Site excavation (if available) will be placed in small piles throughout the mitigation area. These piles can provide habitat for reptiles and small mammals.

#### 7.3.2 Plantings

A variety of native evergreen and deciduous trees, shrubs, and groundcovers will be used to plant the wetland and buffer areas. A plant schedule is provided on **Sheet W5.0 in Appendix A**. Plant materials will consist of a combination of bare-root and container stock. Plant species were chosen for a variety of qualities, including adaptation to specific water regimes, value to wildlife, value as a physical or visual barrier, pattern of growth (structural diversity), and aesthetic values. Native tree, shrub, and groundcover species were chosen to increase both the structural and species diversity of the mitigation areas, thereby increasing the value of the mitigation areas to wildlife for food and cover. Planting will be planned to occur during the dormant season (late fall, winter, or early spring) to maximize the chance for successful plant establishment and survival.

#### 7.3.3 Temporary Irrigation System

An aboveground temporary irrigation system capable of full head-to-head coverage of all the restored and enhanced buffer areas will be provided. The temporary irrigation system shall either utilize controller and point-of-connection (POC) from the Site irrigation system or shall include a separate POC and controller with a backflow prevention device per water jurisdiction inspection and approval. The system shall be zoned to provide optimal pressure and uniformity of coverage, as well as separation for areas of full sun or shade, and slopes in excess of 5-percent.

The system shall be operational by June 15 (or at time of planting) and winterized by October 1<sup>st</sup>. Irrigation shall be provided for the first 2 years of the monitoring period following installation. The irrigation system shall be programmed to provide ½" of water every three days (one cycle with two start times per week or every three days). A chart describing the location of all installed or open zones and corresponding controller numbers shall be placed inside of the controller and given to the owner's representative. Prior to release of the bond at the end of the City required 5-year monitoring period, all components of the aboveground temporary irrigation system shall be removed from all of the mitigation areas.

### 7.4 Mitigation Goals, Objectives, and Performance Standards

The primary goal of the mitigation project is to replace the functions and values lost through development impacts to the critical area buffers. In order to accomplish this goal, the proposed mitigation plan will enhance 21,995 sf of the Schneider Creek and Wetland B buffers as mitigation for the stream and wetland buffer reductions and to further mitigate temporary construction impacts.

Mitigation actions will be evaluated through the following objectives and performance standards. See **Section 9.3** for a full description of the monitoring methods that will be used to evaluate the approved performance standards. A qualified biologist will perform mitigation monitoring.

#### **7.4.1 Goal 1: Schneider Creek Buffer Restoration**

**Objective A:** Create structural and plant species diversity in the buffer restoration areas.

**Performance Standard A1:** *At least 15 species of desirable native plants will be present during the monitoring period. Percent survival of planted woody species must be at least 100% at the end of Year 1 (per contactor warranty), and at least 80% for each subsequent year of the monitoring period.*

**Performance Standard A2:** *Total percent aerial woody plant coverage must be at least 45% by Year 4 and 70% by Year 5. Woody coverage may be comprised of both planted and recolonized native species; however, to maintain species diversity, at no time shall a recolonized species (e.g., red alder) comprise more than 20% of the total woody coverage. There must be at least three native species providing at least 20% each, or four native species providing at least 15% each, or five native species providing at least 10% of the total aerial woody plant coverage.*

**Objective B:** Increase the overall habitat functions of these buffer areas by incorporating habitat features (*i.e.*, down logs, stumps, and boulder piles, as appropriate) into the buffers.

**Performance Standard B:** *After construction and for the entirety of the monitoring period, the mitigation areas will contain at least 18 habitat features per acre (1 piece/2,500 sf) including down woody material (logs, stumps, etc.). Down logs shall be a minimum of 18 feet in length and 15" diameter at breast height, with or without roots. Stumps shall be either well-decayed relocated stumps, or cut live rootwads with a minimum of 3 feet of trunk. Stumps will be placed both upright and lying down. Additional habitat features can be placed within the mitigation areas only after specified quantities and sizes have been met.*

**Objective C:** Limit the amount of invasive and exotic species within these mitigation areas.

**Performance Standard C:** *After construction and following every monitoring event for a period of five years, exotic and invasive plant species will be maintained at levels of no more than 15% cover over any 500-sf area within the mitigation areas. These species include Scot's broom, Himalayan and evergreen blackberry, purple loosestrife, hedge bindweed, knotweed sp., and creeping nightshade.*

#### **7.5 Functional Value Analysis of the Schneider Creek Buffer**

We reassessed the functions of the buffer for Schneider Creek based on anticipated conditions of the mitigation at maturity. These results are summarized on **Table 4**.

The proposed buffer Restoration plan for Schneider Creek will remove non-native invasive species (Himalayan and evergreen blackberry, reed canarygrass, *etc.*) before planting. The large woody debris will provide terrestrial habitat within the buffer and will help develop a more natural stream buffer habitat.

**Table 4.** Functional Value Analysis – Post-mitigation Condition

<b>Function</b>	<b>Shade/ Temperature Regulation</b>	<b>Woody Debris Recruitment</b>	<b>Water Quality Improvement</b>	<b>Hydrologic Functions</b>	<b>Habitat Value</b>
<b>Existing Conditions</b>	<b>Moderate Low</b>	<b>Low</b>	<b>Moderate Low</b>	<b>Moderate Low</b>	<b>Low</b>
<b>Mitigated Conditions</b>	<b>Moderate high to High:</b> The proposed planting of native trees and shrubs will provide greatly improved shading and temperature control in Schneider Creek at maturity.	<b>Moderate high to high:</b> Large woody debris will be incorporated into the mitigated buffer. Additionally, as the trees and shrubs grow and mature, they will naturally support recruitment of woody debris.	<b>Moderate to Moderate High:</b> The mitigated buffer will have the opportunity to provide water quality improvements that the existing buffer does not.	<b>Moderate High:</b> The restored onsite buffer area will provide an increase in Hydrologic functions to Schneider Creek through the infiltration of clean rooftop runoff. The hydroperiod of Schneider Creek will also be extended.	<b>Moderate High to High:</b> Increased plant species diversity, strata, and structural diversity will provide higher habitat value compared to existing conditions.

The buffer will be extensively planted with a variety of native trees and shrubs suitable for use in a riparian buffer area. At maturity, these plants will provide abundant niches for a variety of bird, mammal, and amphibian species, while providing shading and temperature control within Schneider Creek. This shading will help maintain adequate water temperatures for salmonid spawning and rearing.

A more specific discussion of the post-mitigation buffer functions is provided below:

#### ***Shade and Temperature Regulation***

The existing grasses within the onsite portion of the Schneider Creek buffer will be removed and replaced with native trees, shrubs, and groundcovers. Since Schneider Creek is relatively narrow, the shading effect will be quickly achieved during the monitoring period and will improve as the buffer plantings approach maturity. Maintaining shade and cool water temperatures through the Milano Issaquah Apartments property will benefit downstream salmonid resources. We believe that the ability of the post-mitigation buffer to provide shade and temperature regulation will generally increase from the **Moderate Low** rating to a **Moderate to Moderate High** rating at maturity.

#### ***Woody Debris Recruitment***

Installation of large woody debris will instantly address the general lack of any woody debris within the Schneider Creek buffer under existing conditions. As the planted trees and shrubs grow and mature, they will naturally provide additional woody debris in the form of leaves, needles, twigs, branches, and even down logs. We believe that the ability of the post-mitigation buffer to recruit woody debris will generally increase from a **Low** rating to a **Moderate High to High** rating.

#### ***Water Quality Improvements***

We determined that the Schneider Creek buffer under existing conditions would provide moderate levels of water quality improvement. This determination was based partly on the width of the existing vegetated buffer and the lack of development near Schneider Creek. The proposed buffer restoration plan will improve the species diversity within the buffer and could take advantage of different species abilities to sequester heavy metals, nutrients, and toxic organic compounds. The biggest difference between existing conditions and the post-development mitigated condition is that the buffer post-development will have the opportunity to actually provide water quality improvements. Additionally, the proposed stormwater treatment system will significantly reduce the level of pollutants in stormwater prior to release into the buffer. We believe that the ability of the post-mitigation buffer to provide water quality improvements will increase from a **Moderate Low** rating to a **Moderate to Moderate High** rating.

#### ***Hydrologic Functions***

The restored onsite buffer area will provide an increase in Hydrologic functions to Schneider Creek an extended hydroperiod. Following precipitation events, lawn has a poor infiltration rate compared to mature forested areas, which means that less water is able to infiltrate into the groundwater table before evaporating. At maturity, the restored buffer area will provide an increased ability for precipitation to infiltrate into the groundwater table, resulting in a more substantial base flow and longer hydroperiod in Schneider Creek. This means that cool groundwater will be available to support the flows of Schneider Creek into the drier summer months. Additionally, clean rooftop runoff will be directed to a dispersion trench located just outside of the buffer, which will directly support the base flow of Schneider Creek. Therefore, we believe that the ability of the post-mitigation buffer to provide hydrologic functions will increase from **Moderate Low** to **Moderate High**.

### ***Habitat Value***

The habitat value of the existing buffer is severely limited by current maintenance practices (lawn mowing). The proposed buffer restoration plan will remove all non-native weedy species and will replant with a variety of native trees and shrubs. The buffer will be further enhanced by installation of habitat features (*e.g.*, down logs and stumps). At maturity, the enhanced buffer will provide much greater habitat value to various animal species through increased species diversity, increased habitat features and greater topographic and structural diversity. We believe that the ability of the post-mitigation buffer to provide habitat will increase from the pre-construction **Low** to rating to a **Moderate High to High** rating.

## **CHAPTER 8. CONSTRUCTION MANAGEMENT**

---

### **8.1 Mitigation Construction Sequencing**

The following provides a general sequence of activities anticipated to be necessary to complete this mitigation project. Some of these activities may be conducted concurrently as the project progresses.

1. Conduct a Site meeting between the contractor, Talasaea Consultants, and the owner's representative to review the project plans.
2. Survey clearing limits, flag and protect vegetation to remain.
3. Verify, using an independent qualified professional, the limits of clearing per the approved Site development plans.
4. Install silt fence and any other erosion and sedimentation control BMPs necessary for work in the critical areas (see civil TESC plans).
5. Construct project per civil plans.
6. Revegetate any cleared area that will remain idle for six or more months (consistent with the TЕСP).
7. Clear and grub non-native/invasive vegetation from Schneider Creek buffer.
8. Install habitat features
9. Place mulch within the Schneider Creek buffer area.
10. Complete Site cleanup and install plant material.
11. Install split-rail fence and critical area signs.

### **8.2 Post-Construction Approval**

Talasaea Consultants shall notify the City of Issaquah in writing when the mitigation planting is completed to set up for a final Site inspection and subsequent approval. Once final approval is obtained in writing from the City of Issaquah, the monitoring period will begin.

### **8.3 Post-Construction Assessment**

A qualified wetland ecologist/biologist from Talasaea Consultants shall conduct a post-construction assessment after receipt of the post-construction approval from the City of Issaquah. The purpose of this assessment will be to establish baseline conditions at Year 0 of the required monitoring period. A Baseline Assessment Report, which will include as-built drawings, will be submitted to the City. The as-built plan set will depict any field changes to the mitigation plan (planting locations, habitat features, *etc.*) from the original approved mitigation plan.

## CHAPTER 9. MONITORING PLAN

### 9.1 Monitoring Schedule

Performance monitoring of the mitigation areas will be conducted for a period of five (5) years pursuant to IMC 18.10.500. Monitoring will be conducted according to the schedule presented in **Table 5** below. Monitoring will be performed by a qualified biologist or ecologist.

**Table 5. Projected Schedule for Performance Monitoring and Maintenance Events**

Year	Date	Maintenance Review	Performance Monitoring	Report Due to City
BA <sup>1</sup>	Winter/Spring	X	X	X
1	Spring	X	X	
	Fall	X	X	X
2	Spring	X	X	
	Fall	X	X	X
3	Spring	X		
	Fall	X	X	X
4	Spring	X		
	Fall	X	X	X
5	Spring	X		
	Fall	X	X	X <sup>2</sup>

<sup>1</sup> BA = Baseline Assessment following construction completion.

<sup>2</sup> Obtain final approval from City of Issaquah (presumes performance criteria are met).

### 9.2 Monitoring Reports

Each monitoring report will adhere to applicable City requirements. The reports will include: 1) Project Overview, 2) Requirements, 3) Summary Data, 4) Maps and Plans, and 5) Conclusions. If the performance criteria are met, monitoring for the City will cease at the end of year five, unless objectives are met at an earlier date and the City accepts the mitigation project as successfully completed.

### 9.3 Monitoring Methods for Vegetation Establishment

Vegetation monitoring methods may include counts; photo-points; random sampling; sampling plots, quadrats, or transects; stem density; visual inspection; and/or other methods deemed appropriate by the City. Vegetation monitoring components shall include general appearance, health, mortality, colonization rates, percent cover, percent survival, volunteer plant species, and invasive weed cover.

Permanent vegetation sampling plots, quadrats, and/or transects will be established at selected locations to adequately sample and represent all of the plant communities within the mitigation project areas. The number, exact size, and location of transects, sampling plots, and quadrats will be determined at the time of the baseline assessment.

Percent areal cover of woody vegetation (forested and/or scrub-shrub plant communities) will be evaluated through the use of point-intercept sampling methodology. Using this methodology, a tape will be extended between two permanent markers at each end of an established transect. Trees and shrubs intercepted by the tape will be identified, and the intercept distance recorded.

Percent cover by species will then be calculated by adding the intercept distances and expressing them as a total proportion of the tape length.

The established vegetation sampling locations will be monitored and compared to the baseline data during each performance monitoring event to aid in determining the success of plant establishment. Percent survival of shrubs and trees will be evaluated in a 10-foot-wide strip along each established transect. The species and location of all shrubs and trees within this area will be recorded at the time of the baseline assessment and will be evaluated during each monitoring event to determine percent survival.

Areas that were cleared or over-cleared and, subsequently, replanted with native trees and shrubs shall be monitored for plant survival for a three-year period. This three-year period will guarantee the successful establishment of native vegetation and the prevention of re-establishment of non-native invasive species.

The wetland buffers and common edges of forested open space shall be monitored for tree blow-downs after clearing and construction for a period of three years. Areas impacted by tree blow-down shall be replanted with native trees at a ratio consistent with the City of Issaquah's Tree Replacement Code (IMC 18.12.1390).

#### **9.4 Photo Documentation**

Locations will be established within the mitigation area from which panoramic photographs will be taken throughout the monitoring period. These photographs will document general appearance and relative changes within the plant community. Review of the photos over time will provide a semi-quantitative representation of success of the planting plan. Vegetation sampling transect/plot/quadrat and photo-point locations will be shown on a map and submitted with the baseline assessment report and yearly performance monitoring reports.

#### **9.5 Wildlife**

Birds, mammals, reptiles, amphibians, and invertebrates observed in the wetland and buffer areas (either by direct or indirect means) will be identified and recorded during scheduled monitoring events, and at any other times observations are made. Direct observations include actual sightings, while indirect observations include tracks, scat, nests, song, or other indicative signs. The kinds and locations of the habitat with greatest use by each species will be noted, as will any breeding or nesting activities.

#### **9.6 Water Quality**

Water quality will be assessed qualitatively; unless it is evident there is a serious problem. In such an event, water quality samples will be taken and analyzed in a laboratory for suspected parameters. Qualitative assessments of water quality include:

- oil sheen or other surface films,
- abnormal color or odor of water,
- stressed or dead vegetation or aquatic fauna,
- turbidity, and
- absence of aquatic fauna.

## 9.7 Site Stability

Observations will be made of the general stability of soils in the mitigation areas during each monitoring event. Any erosion of soils will be recorded, and corrective measures will be taken.

## CHAPTER 10. MAINTENANCE AND CONTINGENCY

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Regular maintenance reviews will be performed according to schedule presented in **Table 5** to address any conditions that could jeopardize the success of the mitigation project. Following maintenance reviews by the biologist or ecologist, required maintenance on the Site will be implemented within 10 business days of submission of a maintenance memo to the maintenance contractor and permittee.

Established performance standards for the project will be compared to the yearly monitoring results to judge the success of the mitigation. If, during the course of the monitoring period, there appears to be a significant problem with achieving the performance standards, the permittee shall work with the City to develop a Contingency Plan in order to get the project back into compliance with the performance standards. Contingency plans can include, but are not limited to, the following actions: additional plant installation, erosion control, modifications to hydrology, and plant substitutions of type, size, quantity, and/or location. If required, a Contingency Plan shall be submitted to the City by December 31<sup>st</sup> of any year when deficiencies are discovered.

The following list includes examples of maintenance (M) and contingency (C) actions that may be implemented during the course of the monitoring period. This list is not intended to be exhaustive, and other actions may be implemented as deemed necessary.

- During year one, replace all dead woody plant material (M).
- Water all plantings at a rate of ½-inch” of water every three days between June 15 – October 1st during the first two years after installation, and for the first two years after any replacement plantings (C & M).
- Replace dead plants with the same species or a substitute species that meets the goals and objectives of the mitigation plan, subject to Talasaea and agency approval (C).
- Re-plant area after reason for failure has been identified (*e.g.*, moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, *etc.*) (C).
- After consulting with City staff, minor excavations, if deemed to be more beneficial to the existing conditions than currently exists, will be made to correct surface drainage patterns (C).
- Remove/control weedy or exotic invasive plants (*e.g.*, Scot's broom, Himalayan blackberry, purple loosestrife, knotweed *sp*, hedge bindweed, reed canarygrass, *etc.*) by manual or chemical means approved by permitting agencies. Use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful and would require prior agency approval. All non-native vegetation must be removed and disposed of off-site. (C & M).
- Weed all trees and shrubs to the dripline and provide 3-inch-deep mulch rings 24 inches in diameter for shrubs and 36 inches in diameter for trees (M).
- Remove trash and other debris from the mitigation areas twice a year (M).

- Selectively prune woody plants at the direction of Talasaea Consultants to meet the mitigation plan's goal and objectives (e.g., thinning and removal of dead or diseased portions of trees/shrubs) (M).
- Repair or replace damaged structures, including signs and fences (M).

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## **CHAPTER 11. LONG-TERM MAINTENANCE**

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Per IMC 18.10.805 all regulated wetlands and streams located on the property to be developed shall be maintained in perpetuity by the property owner. The overall Long-Term Maintenance Plan goal is to ensure the protection and viability of the critical areas on the Project Site in perpetuity. Long-term management will include maintenance and monitoring tasks that are intended to ensure the viability of the mitigation areas once the performance standards have been achieved at the end of the five-year required monitoring period. Long-Term Management tasks will include, but are not necessarily limited to, the following:

- Conduct periodic walk-through surveys to qualitatively monitor the general condition of the mitigation areas. Establish reference locations for photographs and prepare a Site map showing the reference locations. Reference photographs will be taken at the select locations during walk-through surveys to document mitigation Site conditions. Document in writing any management or maintenance recommendations or areas of concern during each walk-through survey.
- Monitor and manage non-native invasive species that diminish habitat structure and function within the mitigation Site. If necessary, develop and implement specific control actions. These may include, but are not limited to, spot weeding and selective herbicide application.
- Monitor the condition of gates, fencing, and signs around the perimeter of the mitigation areas, and repair and/or replace as necessary to deter human intrusion into the mitigation areas.
- Monitor and maintain vegetative barriers around mitigation areas. Vegetated areas along the perimeter of the mitigation areas, installed in order to deter human intrusion, shall be maintained as a dense barrier of continuous woody vegetation so that they continue to provide this function. Replace plants as necessary with the same species or a suitable substitute of native species.
- Clean up trash and debris and repair or rectify damage caused by trespassing or vandalism. Improve management or security measures if necessary, to help prevent future instances of vandalism or trespassing.

The property owner will be responsible for implementing the above tasks in perpetuity in the mitigation areas.

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## **CHAPTER 12. PERFORMANCE BOND**

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Per IMC 18.10.490(D), the applicant shall provide a bond amount equal to 150% of the cost of plants, labor and the 5-year monitoring/maintenance cost prior to final building permit approval. A Critical Areas Mitigation Bond Quantity Worksheet is provided as **Appendix D**.

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## CHAPTER 13. SUMMARY

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The Milano Issaquah Apartments property is located at 2300 Newport Way NW in the City of Issaquah, Washington. The property is an irregularly shaped parcel (King County APN 2024069057) approximately 1.33 acres in size. The proposed development is a five-story multi-family residential apartment building totaling 75,445 sf of gross floor area. The four-story building includes 65 residential units including 4 affordable units and two (2) levels of underground parking. The underground parking includes approximately 55 total parking stalls, 30 percent of which are electric vehicle charging stations, bicycle stalls and motorcycle parking stations. Of the approximately 75,445 sf of gross floor area, underground parking accounts for 21,476 sf, while residential units account for the remaining 34,656 sf net area.

We identified one (1) wetland (Wetland B) and one (1) stream (Schneider Creek) on or adjacent to the Milano Issaquah Apartments property. Wetland B is a small (1,737 sf) Category III wetland located offsite to the northeast and requires a 75-foot standard buffer. Schneider Creek is a Class II stream with salmonids, requiring a 100-foot standard buffer. A single-family residence is located within the standard buffer of Schneider Creek, and the majority of the Schneider Creek buffer is vegetated and maintained as mown lawn associated with the single-family residence.

There will be no direct impacts to Wetland B or Schneider Creek resulting from the proposed site development. Pursuant to IMC 18.10.650(D)(3)(d) – *Wetland Buffer Reduction with Buffer Vegetation Enhancement*, the client proposes a 15% reduction in the buffer of Wetland B which is appropriately mitigated for via restoration of the on-site buffer. Additionally, pursuant to IMC 18.10.790.D(5) – *Stream Buffer Reduction with Removal of Impervious Surface Area*, the standard stream buffer area may be reduced at a 1:1 ratio with the removal of existing, legally nonconforming impervious surface area located within the stream buffer area. A 25% reduction in the Schneider Creek buffer would require the removal of 7,929 sf impervious surface. Of the 11,905 sf of impervious surface found on the property, the Milano Issaquah Apartments development will remove the approximately 7,929 sf found within the standard Schneider Creek buffer, exceeding the required amount by 803 sf. A total of 6,881 sf of Schneider Creek buffer will be temporarily impacted during construction. No native vegetation will be disturbed to construct the temporary access, and impacts to vegetation will be limited to lawn areas.

Mitigation for buffer reductions and temporary construction impacts will be provided through the restoration of 21,995 sf of the reduced buffer areas located on the property. A total of 14,136 sf of proposed planting area is located outside of any existing tree canopy. This area will be planted with a variety of tree, shrub, and groundcover species. A total of 4,499 sf of proposed buffer restoration area is located under an existing tree canopy and will be restored with shade-tolerant shrubs and groundcovers. No trees will be planted under the existing tree canopies. Lastly, 1,726 sf will be directly adjacent to Schneider Creek, and will be planted with water-tolerant, riparian tree, shrub and groundcover species. Habitat features, including down logs and stumps will be imported and placed within these areas and large woody debris will be placed in the buffer and will include stumps and down logs to help restore habitat structural diversity.

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## CHAPTER 14. REFERENCES

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- Cowardin, L., Carter, V., Golet, F., & LaRoe, E. (1979). *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, Department of the Interior.
- Environmental Laboratory. (2010). *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. U.S. Army Corps of Engineers Wetlands Regulatory Assistance Program.
- GeoTech Consultants, Inc. (2006). *Evaluation of Slope Area Adjacent to Newport Way Northwest*.
- Hitchcock, C., & Cronquist, A. (2018). *Flora of the Pacific Northwest*. University of Washington Press.
- Hruby, T. (2014). *Washington State Wetland Rating System for Western Washington - Revised*. Olympia, WA: Washington State Department of Ecology Publication #04-06-029.
- Lichvar, R. (2016). *National Wetland Plant List*. Hanover, NH: U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory.
- Natural Resources Conservation Service. (2006). *National Technical Committee for Hydric Soils*. Retrieved mo da, year, from <[www.soils.usda.gov/use/hydric/ntchs/](http://www.soils.usda.gov/use/hydric/ntchs/)>
- Washington State Department of Ecology. (2012). *Stormwater Management Manual for Western Washington*.
- Washington State Department of Ecology, US Army Corps of Engineers Seattle District, and US Environmental Protection Agency Region 10. (2006). *Wetland Mitigation in Washington State - Part 1: Agency Policies and Guidance (Version 1)*. Olympia, WA: Washington State Department of Ecology.
- Woodruff, K. a. (2005). *Townsend's Big-eared Bat (Corynorhinus townsendii)*. Washington Department of Fish and Wildlife.

## Figures

- Figure 1.** Vicinity Map & Driving Directions
- Figure 2.** Parcel Map
- Figure 3.** National Wetlands Inventory
- Figure 4.** NRCS Soil Map
- Figure 5.** City of Issaquah GIS

SW 1/4, SEC. 20, TWSHP 24N, RNGE 6E, W.M.

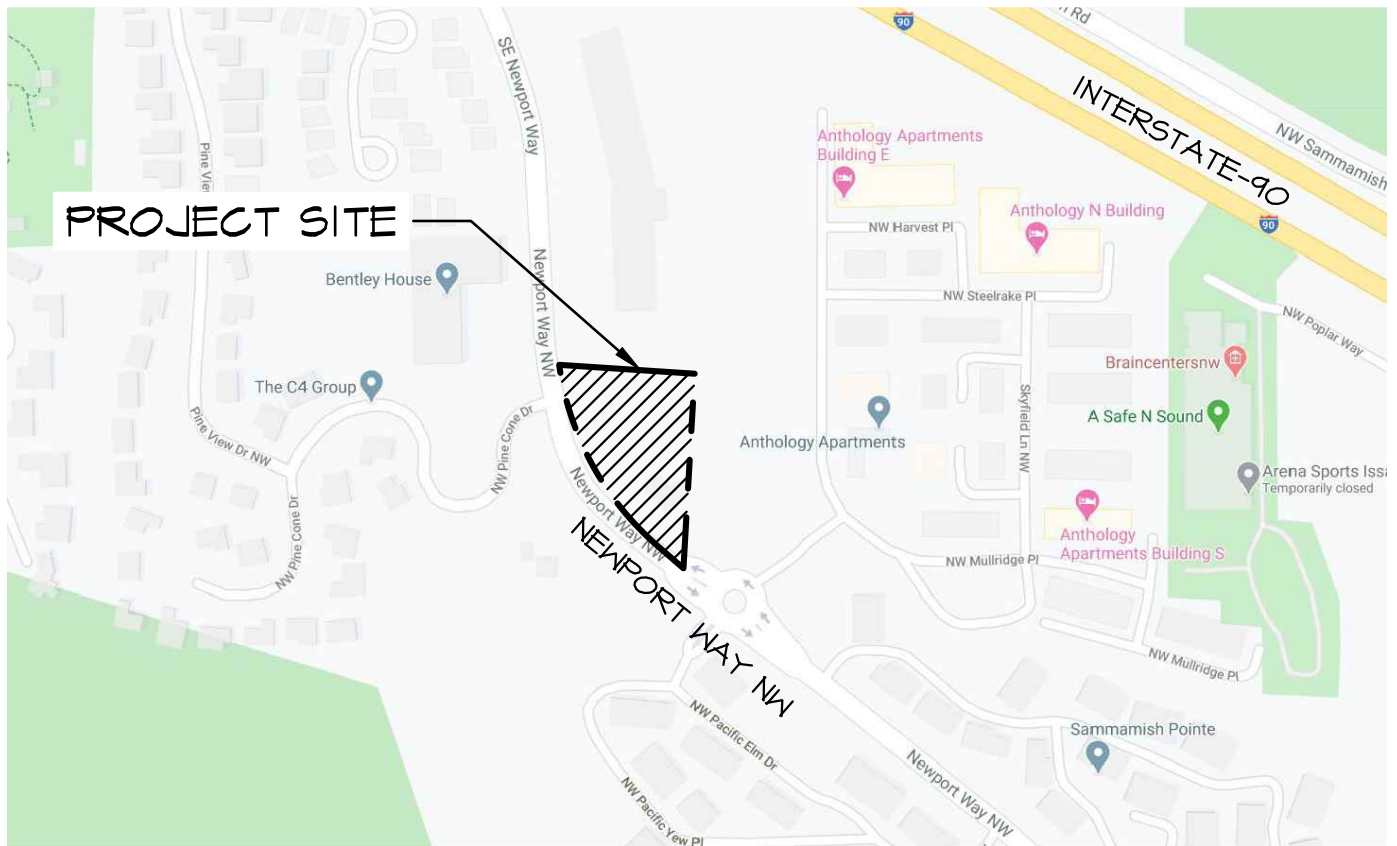


IMAGE SOURCE: GOOGLE MAPS, WWW.MAPS.GOOGLE.COM (ACCESSED 4 MAY 2020)

DRIVING DIRECTIONS:

1. LEAVING FROM ISSAQUAH CITY HALL. HEAD WEST ON EAST SUNSET WAY TOWARD RAINIER BOULEVARD SOUTH.
2. TURN RIGHT ONTO NEWPORT WAY NORTHWEST.
3. TURN LEFT TO STAY ON NEWPORT WAY NORTHWEST.
4. AT THE TRAFFIC CIRCLE, CONTINUE STRAIGHT TO STAY ON NEWPORT WAY NORTHWEST.
5. DESTINATION WILL BE ON THE RIGHT.

2300 NEWPORT WAY NW  
ISSAQUAH, WA 98027



**TALASAEA**  
**CONSULTANTS, INC.**

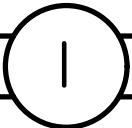
Resource & Environmental Planning

15020 Bear Creek Road Northeast  
Woodinville, Washington 98077  
Bus (425)861-7550 - Fax (425)861-7549

FIGURE #1

VICINITY MAP & DRIVING DIRECTIONS  
MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
5-04-2020		
REVISED		
3-23-2022		



SW 1/4, SEC. 20, TWSHP 24N, RGE 6E, W.M.

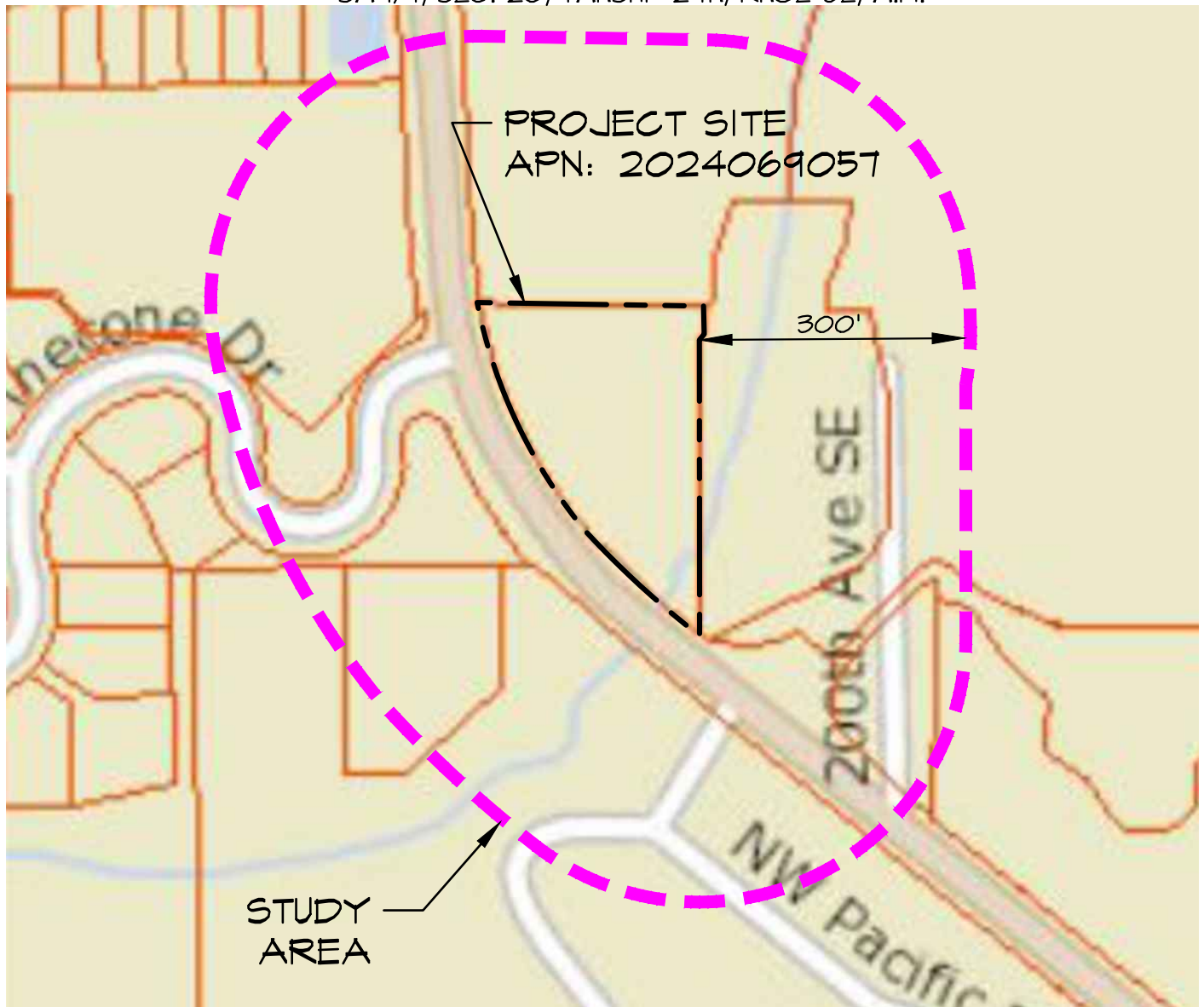


IMAGE SOURCE: KING COUNTY IMAP;  
[HTTP://WWW5.KINGCOUNTY.GOV/IMAP/VIEWER.HTM?MAPSET=KCPROPERTY](http://WWW5.KINGCOUNTY.GOV/IMAP/VIEWER.HTM?MAPSET=KCPROPERTY)  
 (ACCESSED 4 MAY 2020)



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**CONSULTANTS, INC.**

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 Woodinville, Washington 98077  
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FIGURE #2

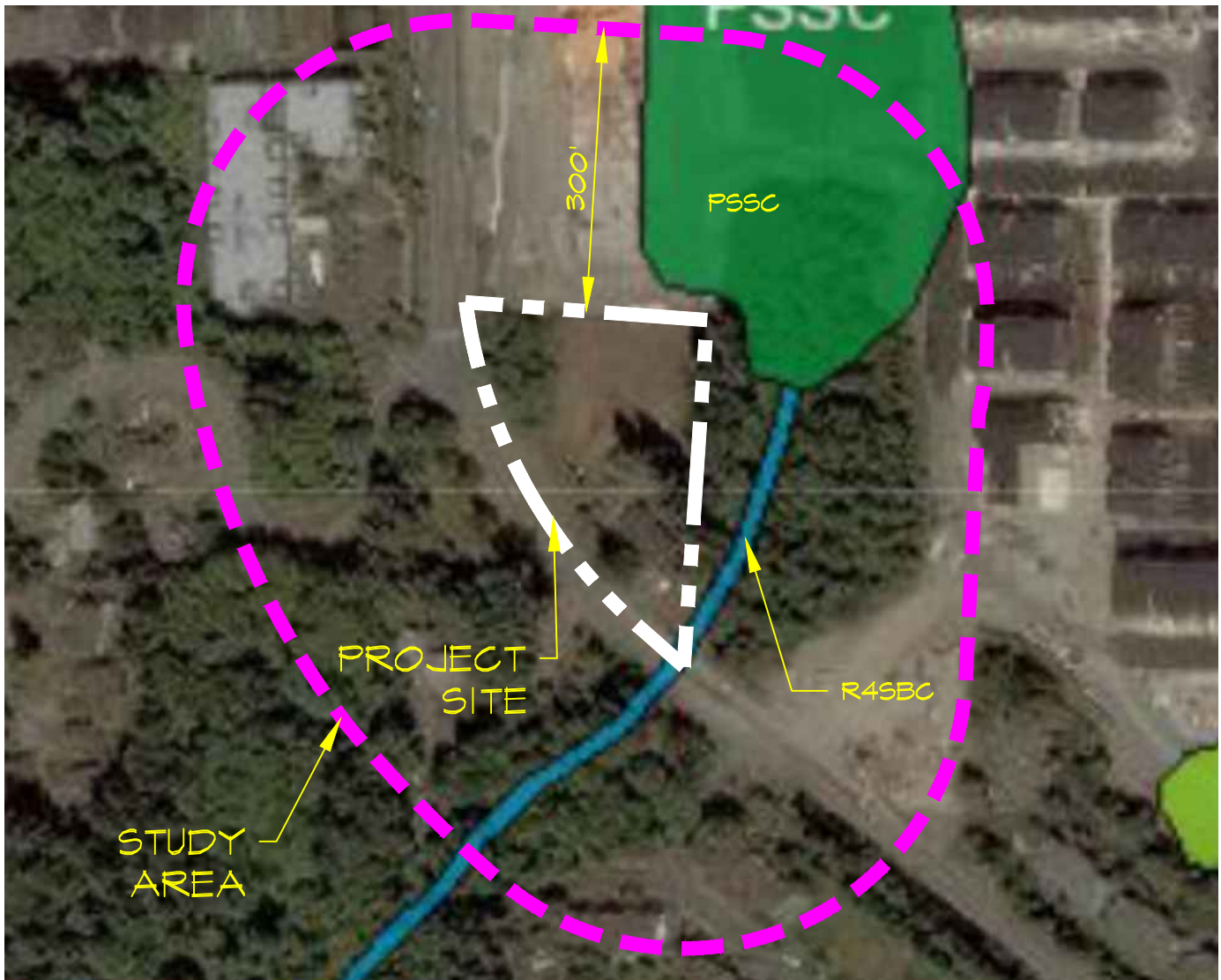
PARCEL MAP  
 MILANO ISSAQUAH APARTMENTS  
 ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816

SCALE
NTS
DATE
5-04-2020
REVISED
3-23-2022

**2**

SW 1/4, SEC. 20, T24N, R6E, W.M.



## LEGEND

TYPE	DESCRIPTION
PSSC	PALUSTRINE, SCRUB-SHRUB, SEASONALLY FLOODED
R4SBC	RIVERINE, INTERMITTENT, STREAMBED, SEASONALLY FLOODED

SOURCE: U.S. FISH AND WILDLIFE SERVICE, MAY 2020). NATIONAL WETLANDS INVENTORY WEBSITE, U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, WASHINGTON D.C.  
<http://www.fws.gov/wetlands/data/wetland-codes.html>



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 Woodinville, Washington 98077  
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FIGURE #3

NATIONAL WETLANDS INVENTORY  
 MILANO ISSAQUAH APARTMENTS  
 ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
5-04-2020		
REVISED		
3-23-2022		

3

SW 1/4, SEC. 20, TOWNSHIP 24N, RANGE 6E, W.M.



## LEGEND

TYPE	DESCRIPTION, SLOPES
EVD	EVERETT VERY GRAVELLY SANDY LOAM, 15 TO 30 PERCENT SLOPES
KpB	KITSAP SILT LOAM, 2 TO 8 PERCENT SLOPES
Bh	BELLINGHAM SILT LOAM

SOURCE: SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE, WEB SOIL SURVEY. AVAILABLE ONLINE AT <http://websoilsurvey.nrcs.usda.gov/>. ACCESSED (MAY 4, 2020).



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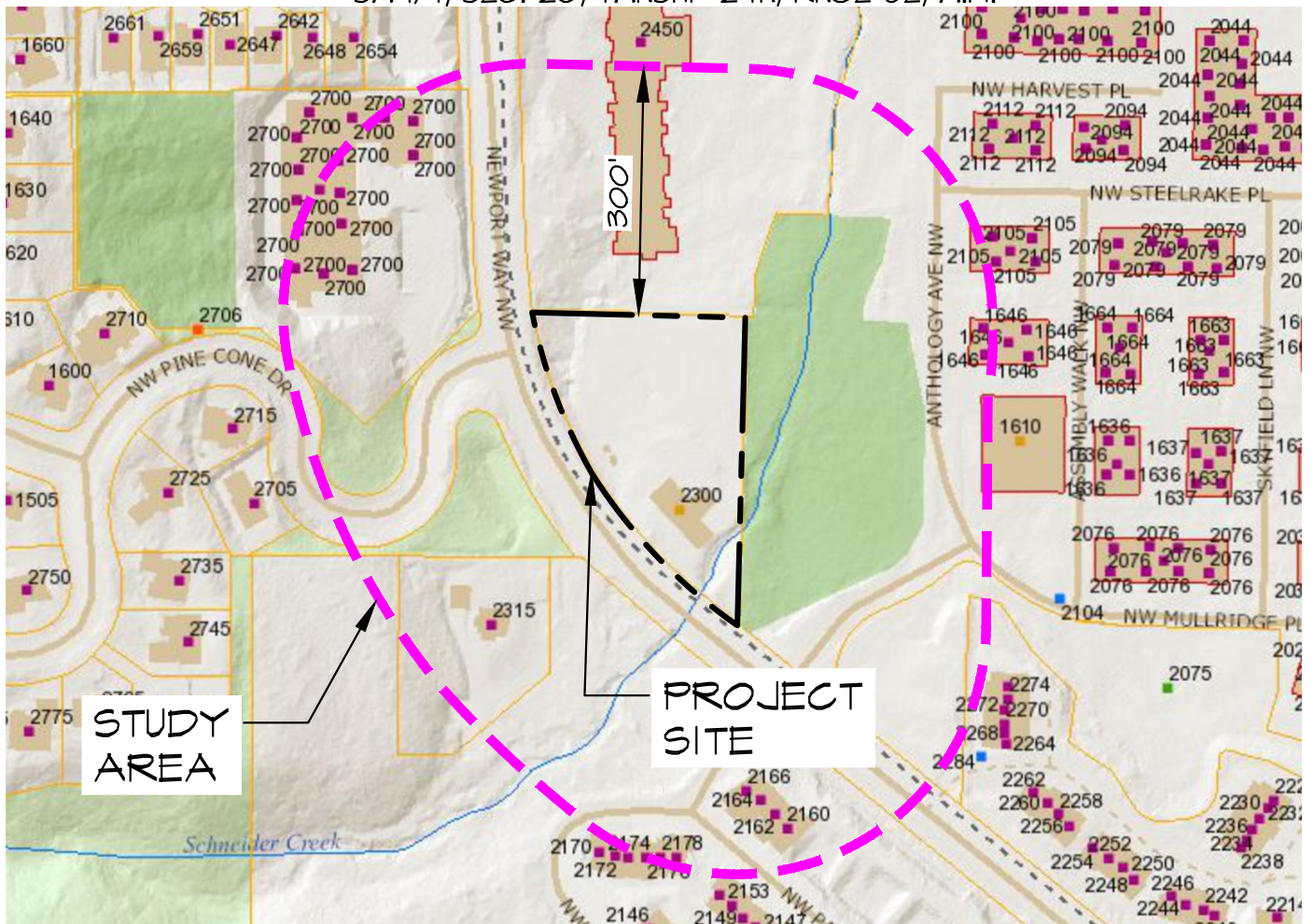
FIGURE #4

NRCS - SOIL MAP  
MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
5-04-2020		
REVISED		
3-23-2022		

4

SW 1/4, SEC. 20, T24N, R6E, W.M.



SOURCE: CITY OF ISSAQUAH GIS VIEWER.  
[HTTPS://PRODUCTS.ISSAQUAHWA.GOV/HTML5VIEWERPUBLIC/INDEX.HTML?VIEWER=ISSYPUBLIC](https://products.issaquahwa.gov/html5viewerpublic/index.html?viewer=issypublic). ACCESSED 8-13-2020



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**CONSULTANTS, INC.**

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FIGURE #5

CITY OF ISSAQUAH GIS  
 MILANO ISSAQUAH APARTMENTS  
 ISSAQUAH, WA

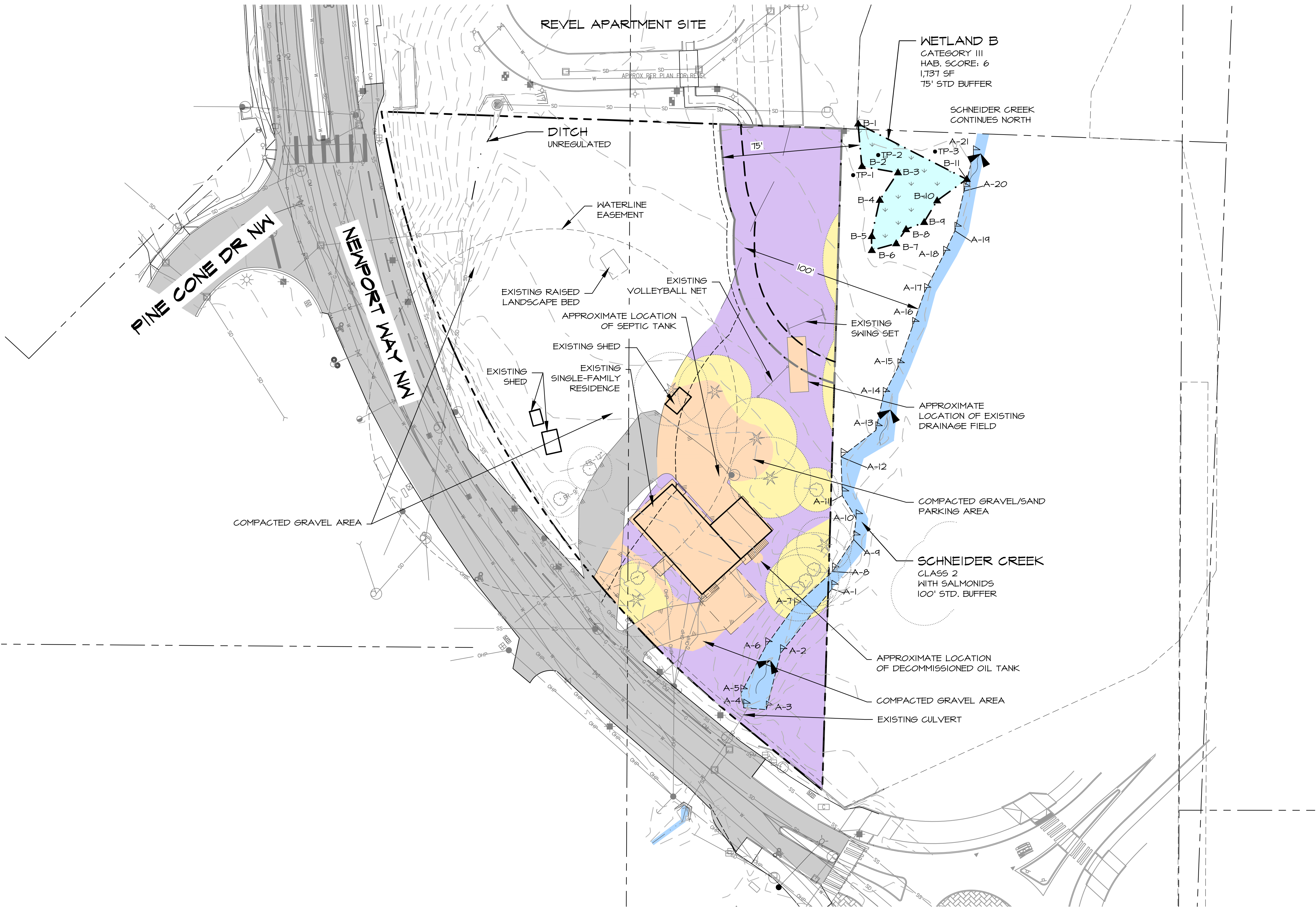
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SCALE		
NTS		
DATE		
5-04-2020		
REVISED		
3-23-2022		

5

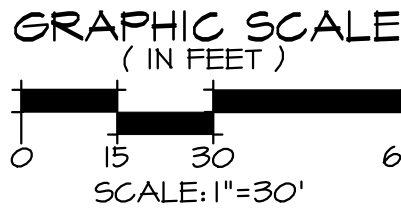
## **Appendix A**

### *Critical Areas Mitigation Plans, Talasaea Consultants Inc, 2022*

- Sheet W1.0** Existing Conditions Plan
- Sheet W2.0** Proposed Site Plan & Impacts Overview Plan
- Sheet W2.0a** Proposed Stream Impacts Overview Plan
- Sheet W2.0b** Proposed Wetland Impacts Overview Plan
- Sheet W2.1** Proposed Site Plan & Mitigation Overview Plan
- Sheet W3.0** Tree Retention Plan
- Sheet W4.0** Clearing, Grubbing, and Habitat Feature Plan
- Sheet W5.0** Planting Plan
- Sheet W5.1** Planting Details
- Sheet W6.0** Planting Specifications



EXISTING CONDITIONS PLAN



PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND
- WETLAND FLAG LOCATION (▲A-#)
- SOIL TEST PIT LOCATION (●TP-#)
- WETLAND BUFFER - STANDARD (75-FT)
- STREAM ORDINARY HIGH WATER MARK (OHWM)
- STREAM BUFFER - STANDARD (100-FT)
- STREAM OHWM FLAG LOCATION (P A-#)
- EXISTING 2-FT CONTOURS
- EXISTING TREES & DRIPLINES (DECIDUOUS - CONIFER)
- EXISTING TREE CANOPY - ESTIMATED FROM AERIAL IMAGE

EXISTING BUFFER VEGETATION LEGEND

- EXISTING TREE CANOPY WITHIN 100-FT STREAM BUFFER 4,841 SF
- EXISTING MOWN GRASS WITHIN 100-FT STREAM BUFFER 14,196 SF
- IMPERVIOUS SURFACE WITHIN 100-FT STREAM BUFFER 7,929 SF

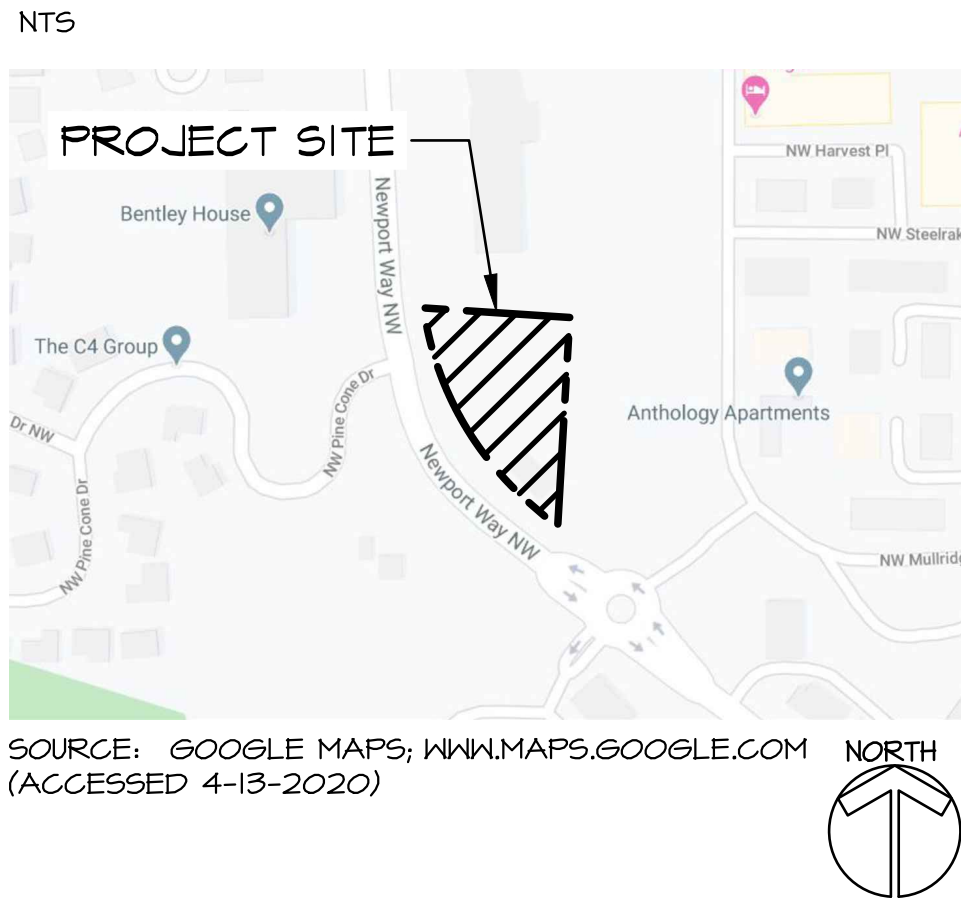
NOT FOR CONSTRUCTION  
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL UNTIL APPROVED, THESE PLANS ARE:  
SUBJECT TO REVISION



NOTES

- SURVEY PROVIDED BY CORE DESIGN, 12100 N 195TH ST, SUITE 300, BOTHELL, WA 98011, (425) 885-1871.
- SITE PLAN PROVIDED BY CORE DESIGN, 12100 N 195TH ST, SUITE 300, (425) 885-1871.
- SOURCE DRAINAGE WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
- THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN SEPT, 2021.

VICINITY MAP



CONTACTS

APPLICANT/OWNER  
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SURVEYOR/ENGINEER  
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ADDRESS: 12100 NE 195TH STREET, SUITE 300 BOTHELL, WA 98011  
PHONE: (425) 885-1871  
CONTACT: GLENN SPRAGUE  
EMAIL: GS@COREDESIGNING.COM

ARCHITECT  
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PHONE: (206) 547-1761  
CONTACT: MATT DRISCOLL  
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ENVIRONMENTAL CONSULTANT  
NAME: TALASAEA CONSULTANTS, INC.  
ADDRESS: 15020 BEAR CREEK RD. NE WOODINVILLE, WA 98071  
PHONE: (425) 861-7550  
CONTACT: JACOB PRATER  
ECOLOGIST  
JPRATER@TALASAEA.COM

SHEET INDEX

SHEET NUMBER	SHEET TITLE
W1.0	EXISTING CONDITIONS PLAN
W2.0	PROPOSED SITE PLAN & IMPACTS OVERVIEW PLAN
W2.0a	PROPOSED STREAM IMPACTS OVERVIEW PLAN
W2.0b	PROPOSED WETLAND IMPACTS OVERVIEW PLAN
W2.1	PROPOSED SITE PLAN & MITIGATION OVERVIEW PLAN
W3.0	TREE RETENTION PLAN
W4.0	CLEARING, GRUBBING, & HABITAT FEATURES PLAN
W5.0	PLANTING PLAN
W5.1	PLANTING DETAILS
W6.0	PLANTING SPECIFICATIONS

CRITICAL AREAS MITIGATION PLAN  
EXISTING CONDITIONS PLAN  
MILANO ISSAGUAH APARTMENTS PROJECT  
ISSAGUAH, WASHINGTON

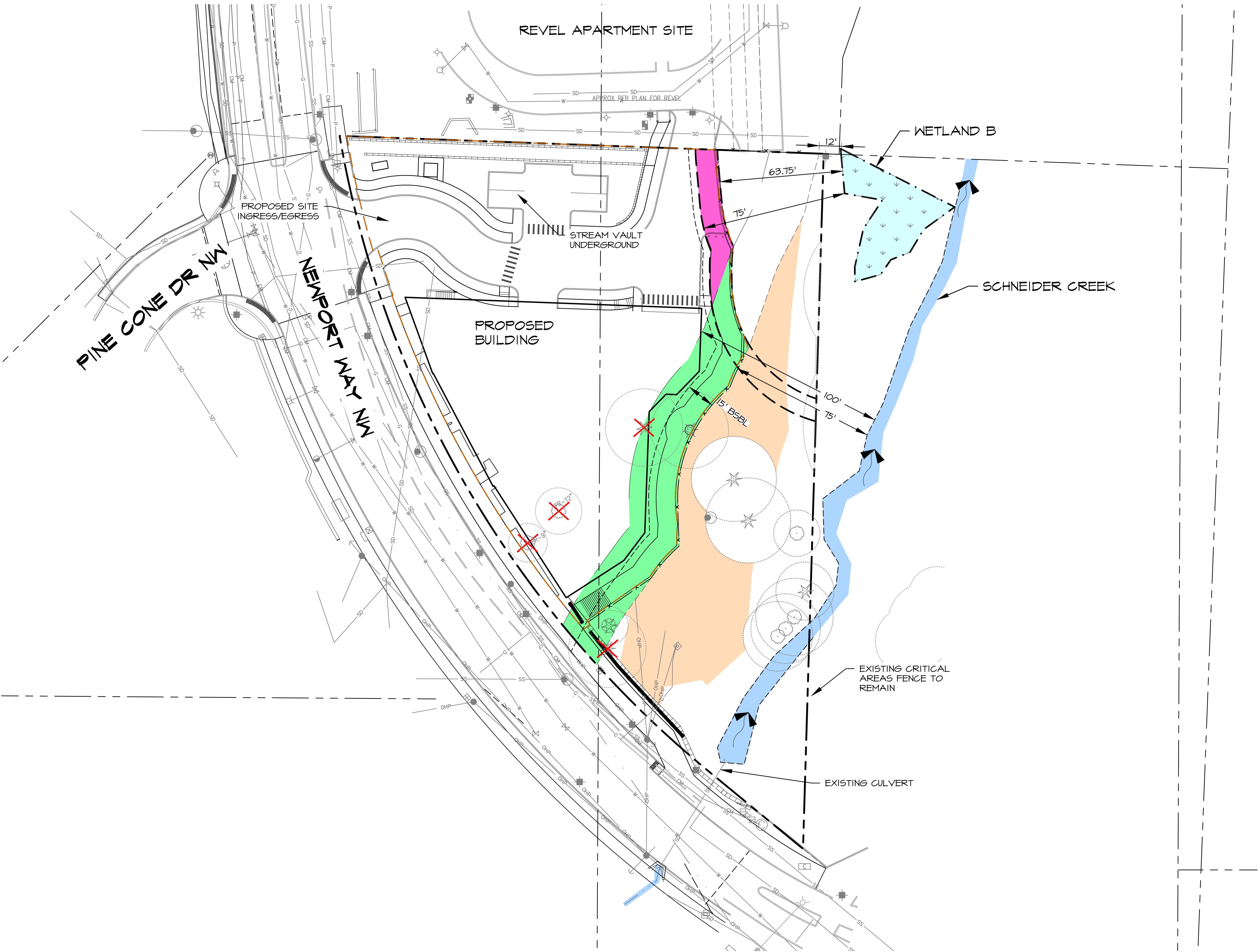
Revisions	Date	By
NEW SITE PLAN	3-17-2022	FH
IMPACTS UPDATE	4-27-2022	SL
CITY COMMENTS	6-23-2022	TH
SITE PLAN REV 3	9-15-2022	TH

Date	11-12-2021
Scale	AS NOTED
Designed	FH
Drawn	FH, TH, KE
Checked	FH
Approved	FH

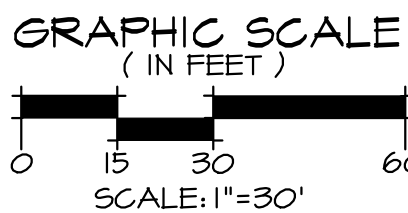
Project #1816

Sheet # W1.0

TALASAEA  
CONSULTANTS, INC.  
Resource & Environmental Planning  
15020 Bear Creek Road Northeast - Woodinville, Washington 98077  
Bus (425) 861-7550 - Fax (425) 861-7549



PROPOSED SITE PLAN, IMPACTS & MITIGATION OVERVIEW PLAN



PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND
- WETLAND BUFFER - REDUCED (63.75-FT)
- STREAM ORDINARY HIGH WATER MARK (OHWM)
- STREAM BUFFER - STANDARD (100-FT)
- STREAM BUFFER - REDUCED (75-FT)
- PROPOSED 15-FT BUILDING SET BACK LIMITS (BSBL)
- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- CONSTRUCTION LIMITS \*\*

\*\* SEE DAVEY RESOURCE GROUP INC MEMO FOR TREE PROTECTION ADJUSTMENTS AUGUST 28, 2022 FOR EXCEPTIONS.

IMPACTS LEGEND

- TEMPORARY IMPACTS FOR BUFFER RESTORATION AND IMPERVIOUS SURFACE & EXISTING BUILDING REMOVAL 6,881 SF
- REDUCED STREAM BUFFER AREA 4,981 SF
- REDUCED WETLAND BUFFER AREA AFTER STREAM BUFFER REDUCTION 781 SF

NOT FOR CONSTRUCTION  
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL UNTIL APPROVED, THESE PLANS ARE:  
SUBJECT TO REVISION



NOTES

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CRITICAL AREAS MITIGATION PLAN  
PROPOSED SITE PLAN & IMPACTS OVERVIEW PLAN  
MILANO ISSAGUAH APARTMENTS PROJECT  
ISSAGUAH, WASHINGTON

TALASAEA  
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Resource & Environmental Planning  
15030 Bear Creek Road Northeast - Woodinville, Washington 98077  
Bus (425) 841-7550 - Fax (425) 841-7549

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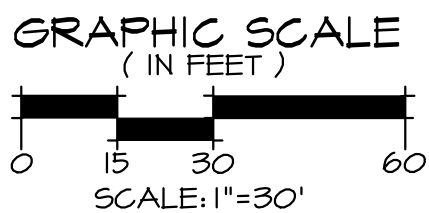
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Project #1216

Sheet # W2.0



PROPOSED SITE PLAN, IMPACTS & MITIGATION OVERVIEW PLAN



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- PROPERTY LINE
- EXISTING WETLAND
- WETLAND BUFFER - REDUCED (63.75-FT)
- STREAM ORDINARY HIGH WATER MARK (OHWM)
- STREAM BUFFER - STANDARD (100-FT)
- STREAM BUFFER - REDUCED (75-FT)
- PROPOSED 15-FT BUILDING SET BACK LIMITS (BSBL)
- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- CONSTRUCTION LIMITS \*\*

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IMPACTS LEGEND

- TEMPORARY IMPACTS FOR BUFFER RESTORATION AND IMPERVIOUS SURFACE & EXISTING BUILDING REMOVAL 6,881 SF
- REDUCED STREAM BUFFER AREA (ENTIRE AREA) 1,126 SF
- TEMPORARY IMPACT TO THE STANDARD STREAM BUFFER 2,145 SF

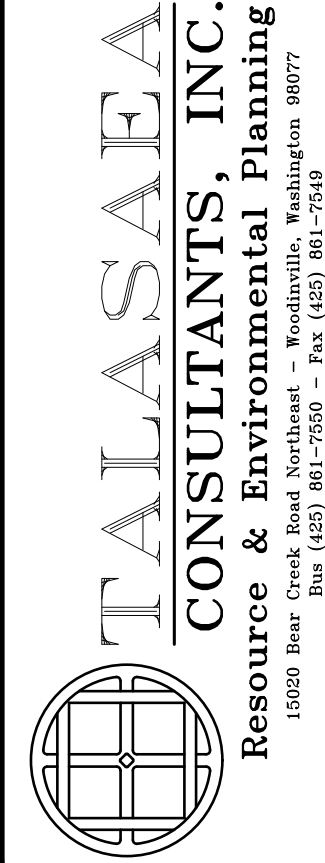
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PROPOSED STREAM IMPACTS OVERVIEW PLAN  
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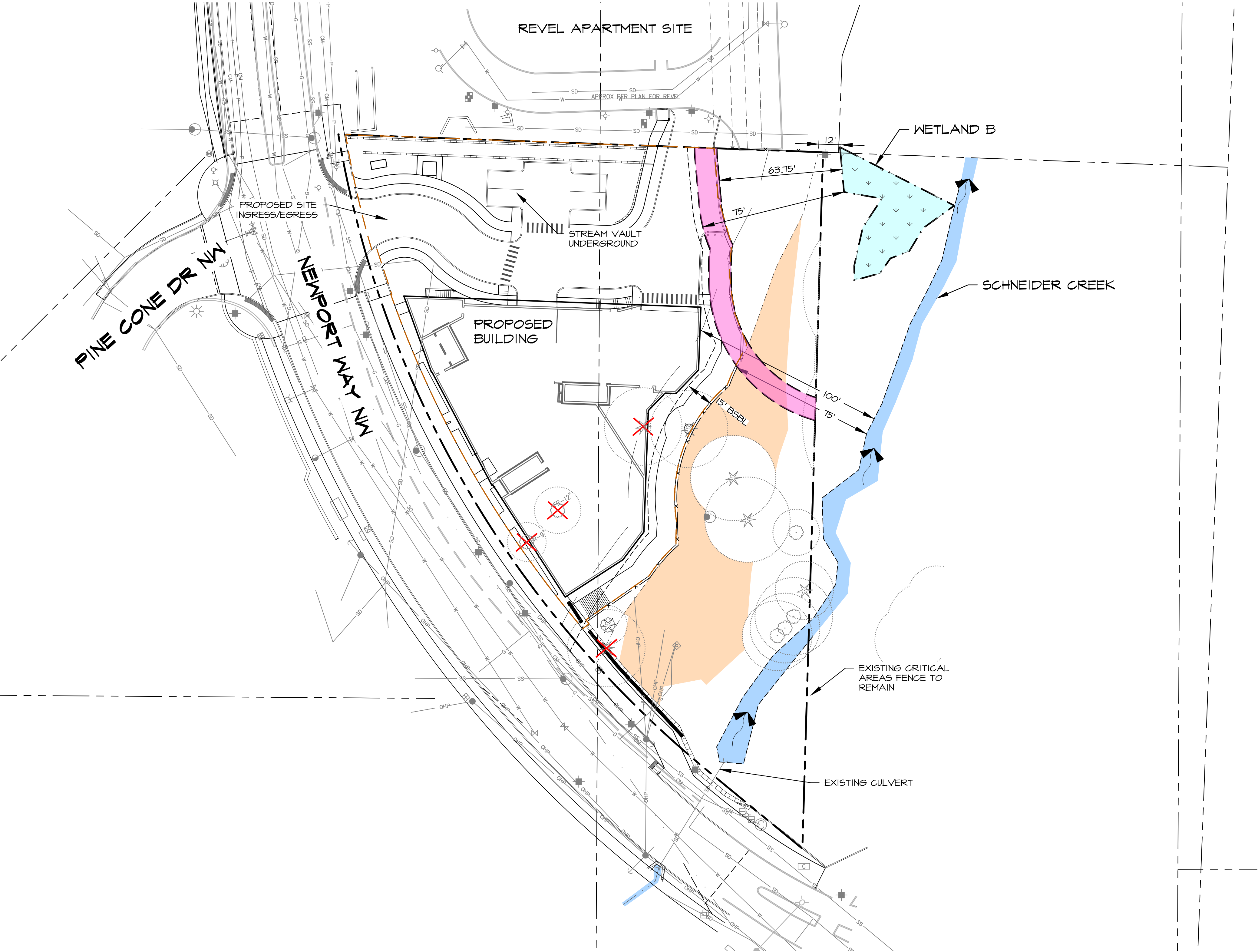


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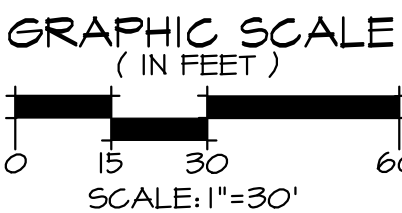
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Project #1216

Sheet # W2.0a



PROPOSED SITE PLAN, IMPACTS & MITIGATION OVERVIEW PLAN



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- EXISTING WETLAND
- WETLAND BUFFER - REDUCED (63.75-FT)
- STREAM ORDINARY HIGH WATER MARK (OHWM)
- STREAM BUFFER - STANDARD (100-FT)
- STREAM BUFFER - REDUCED (75-FT)
- PROPOSED 15-FT BUILDING SET BACK LIMITS (BSBL)
- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- CONSTRUCTION LIMITS \*\*

\*\* SEE DAVEY RESOURCE GROUP INC MEMO FOR TREE PROTECTION ADJUSTMENTS AUGUST 28, 2022 FOR EXCEPTIONS.

IMPACTS LEGEND

- TEMPORARY IMPACTS FOR BUFFER RESTORATION AND IMPERVIOUS SURFACE & EXISTING BUILDING REMOVAL 6,881 SF
- REDUCED WETLAND BUFFER AREA AFTER STREAM BUFFER REDUCTION 1,791 SF

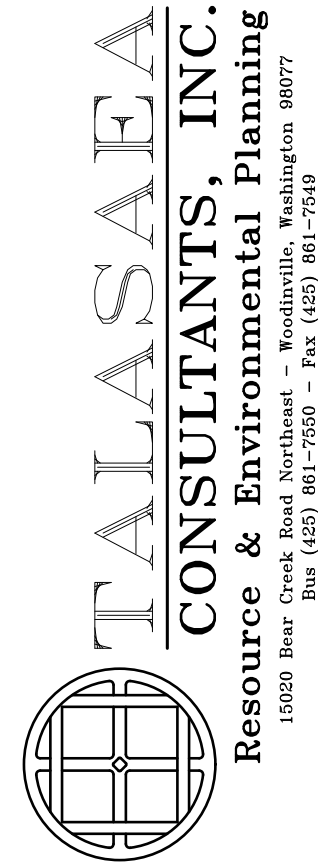
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CRITICAL AREAS MITIGATION PLAN  
PROPOSED WETLAND IMPACTS OVERVIEW PLAN  
MILANO ISSAGUAH APARTMENTS PROJECT  
ISSAGUAH, WASHINGTON



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Project #1216

Sheet # W2.0b

REVEL APARTMENT SITE

APPROX. HGR. PLAN FOR REVEL

WETLAND B

SCHNEIDER CREEK

PROPOSED SITE INGRESS/EGRESS

PINE CONE DR NW

NEWPORT WAY NW

STREAM VAULT UNDERGROUND

PROPOSED BUILDING

75'

SEPTIC TANK TO BE REMOVED PER KING COUNTY REGULATIONS WITH ITS DRAIN FIELD REMOVED WHERE IT MAY NOT DAMAGE SIGNIFICANT TREE ROOTS. SEE DEMOLITION PLAN.

EXISTING CRITICAL AREAS FENCE TO REMAIN

POSSIBLE FUEL TO BE REMOVED PER KING COUNTY REGULATIONS. SEE DEMOLITION PLAN.

EXISTING CULVERT

**GRAPHIC SCALE**  
( IN FEET )

0 15 30 60

SCALE: 1"=30'



PROPERTY LINE

EXISTING WETLAND

POST CONSTRUCTION BUFFER/  
CRITICAL AREA FENCE

STREAM ORDINARY HIGH WATER MARK (OHWM)

PROPOSED 15-FT BUILDING SET BACK LIMITS (BSBL)

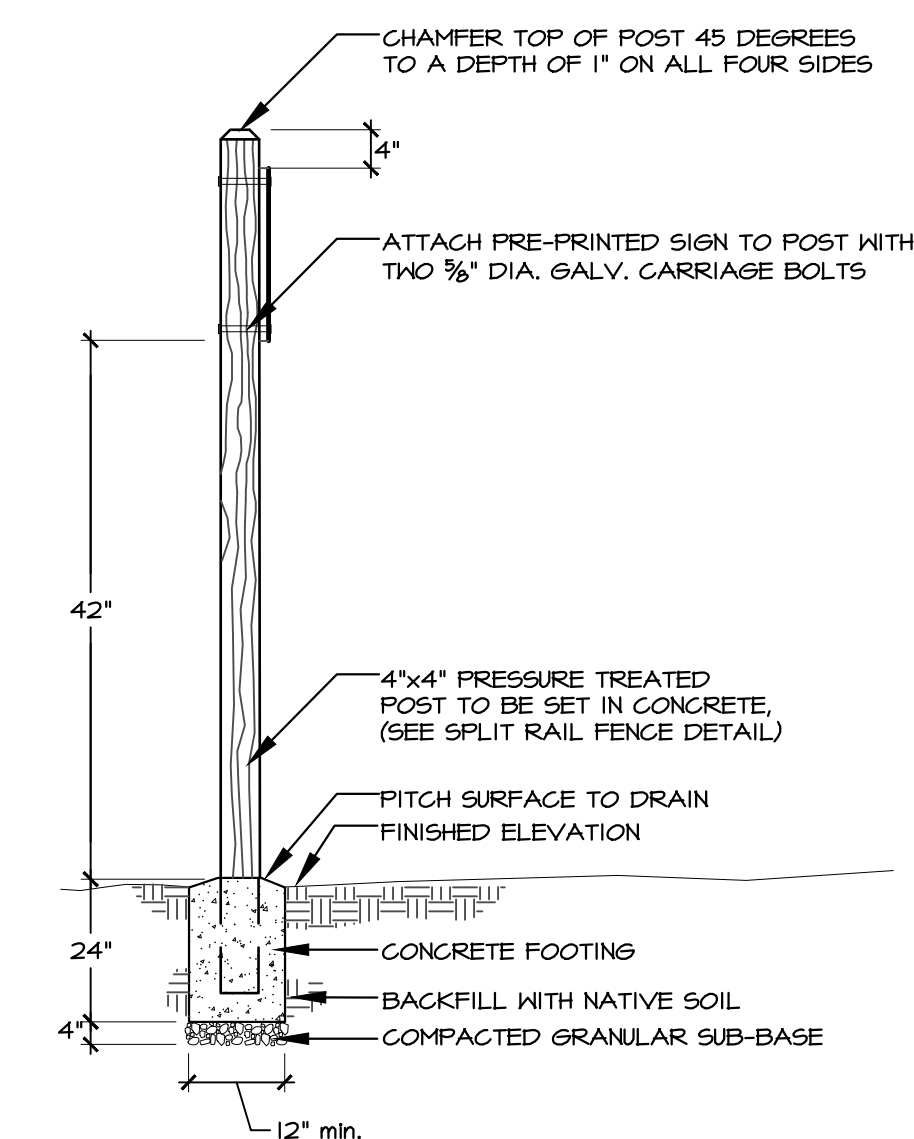
EXISTING TREES TO REMAIN

DECIDUOUS - CONIFER

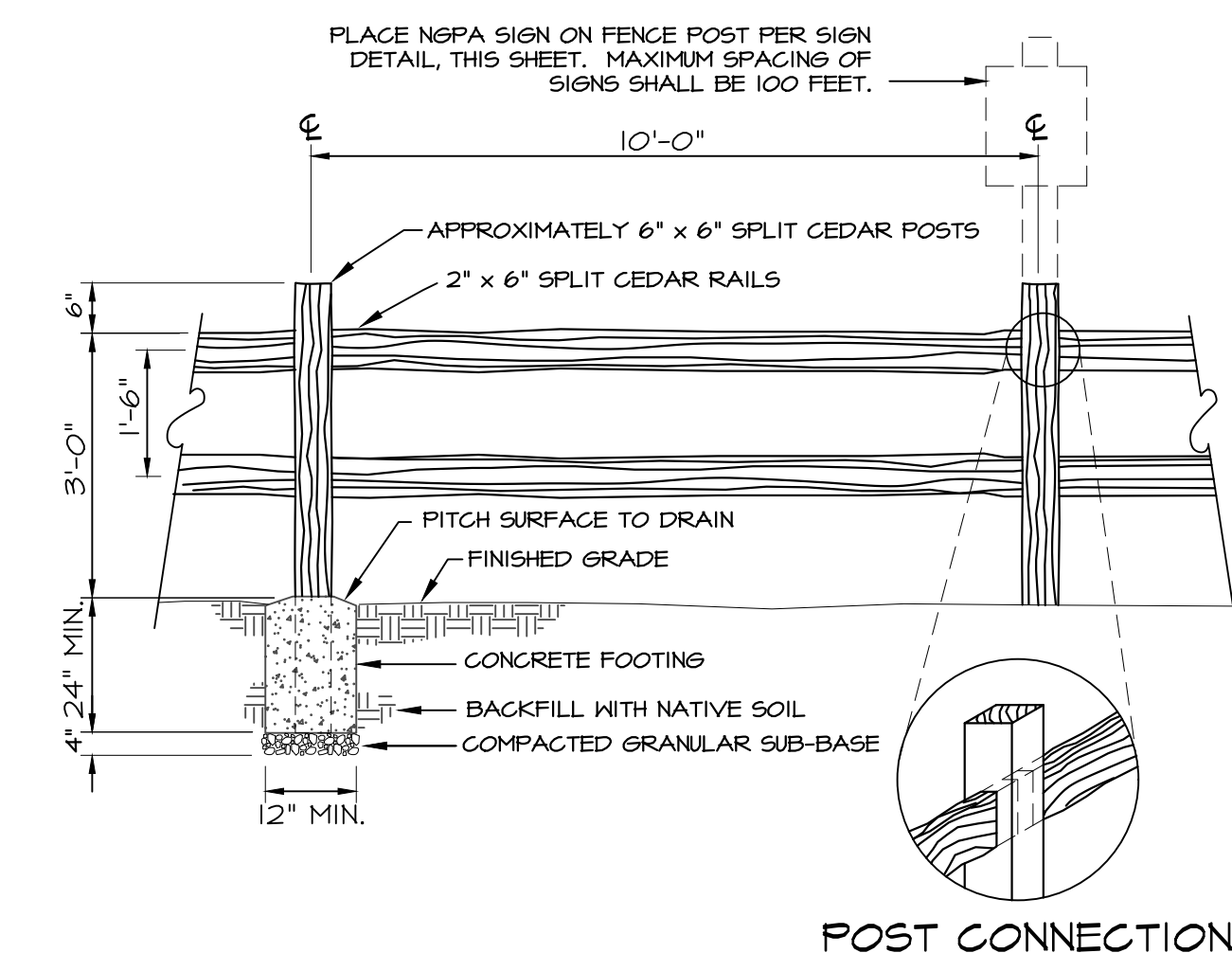
CRITICAL AREA SIGN - SEE DETAIL

CRITICAL AREA FENCE - SEE DETAIL

	BUFFER RESTORATION WITH SHADE TOLERANT SHRUBS & GROUND COVER	4,048 SF
	BUFFER RESTORATION WITH TREES, SHRUBS, & GROUND COVER	14,871 SF
	BUFFER RESTORATION WITH TREES, SHRUBS & GROUND COVER	1,726 SF



NGPA SIGN DETAIL TYP.  
N.T.S.



2 SPLIT 2-RAIL FENCE DETAIL  
N.T.S.

**NOT FOR CONSTRUCTION**

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SUBMITTED TO THE APPROPRIATE  
AGENCIES FOR REVIEW AND  
APPROVAL. UNTIL APPROVED,  
THESE PLANS ARE:

**SUBJECT TO REVISION**



Know what's **below**.  
Call before you dig

1. SURVEY PROVIDED BY CORE DESIGN, 12100 I  
195TH ST, SUITE 300, BOTHELL, WA 98011,  
(425) 885-1871.
2. SITE PLAN PROVIDED BY CORE DESIGN, 12100  
I 195TH ST, SUITE 300, (425) 885-1871.
3. SOURCE DRAWING WAS MODIFIED BY  
TALASAEA CONSULTANTS FOR VISUAL  
ENHANCEMENT.
4. THIS PLAN IS AN ATTACHMENT TO THE  
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SITE PLAN DEV REV 3	9-15-2022	TH

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Drawn	TH
Checked	TH
Approved	TH

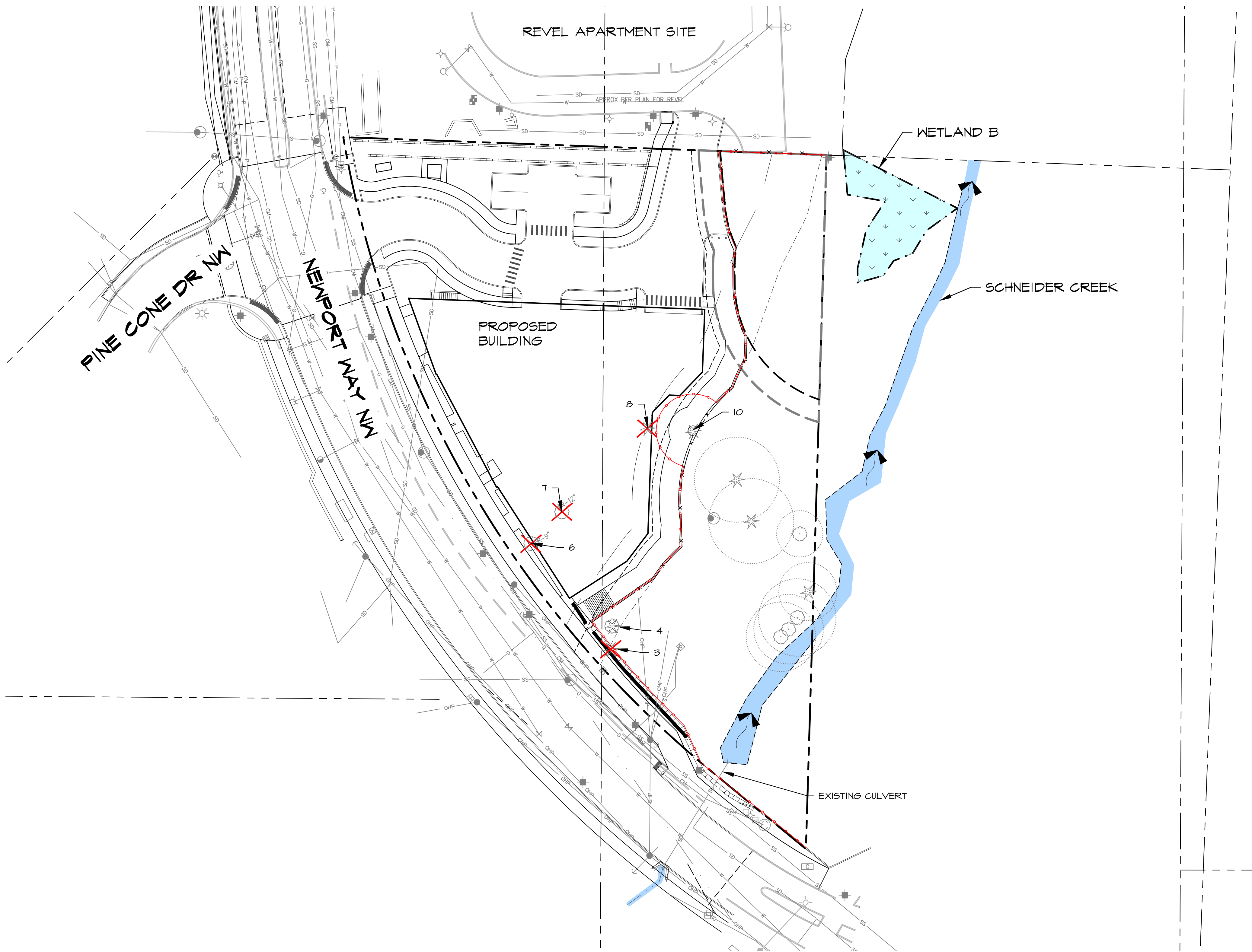
Project #1816

Sheet # W2.1

**CRITICAL AREAS MITIGATION PLAN  
PROPOSED SITE PLAN & MITIGATION OVERVIEW PLAN  
MILANO ISSAQUAH APARTMENTS PROJECT  
ISSAQUAH, WASHINGTON**



**TALA S A F E A**  
**CONSULTANTS, INC.**  
**Resource & Environmental Planning**  
 15050 Bear Creek Road Northeast - Woodville, Washington 98077



MINIMUM TREE DENSITY

PER CDDs 10.10	
SITE AREA PER SURVEY	51,928 SF
LESS CRITICAL AREA WITHIN 75' BUFFER	-21,995 SF
PROPOSED DEVELOPABLE SITE AREA	35,933 SF
MINIMUM TREE DENSITY = 4 SIGNIFICANT TREES PER 5,000 SF DEVELOPABLE AREA	
= (35,933 SF / 5,000 SF) X 4 = 29 TREES OF 6" DBH OR EQUIVALENT TOTAL	29 TREES
NUMBER OF 174 DBH INCHES (29 TREES X 6" CALIPER = 174 INCHES). WITH THE RETENTION OF TREES #4 (18" DBH) AND #10 (19" DBH), THE SITE WOULD REQUIRE AN ADDITIONAL 27 TREES OF SIGNIFICANT SIZE (6").	

CDDs 10.14.A.2 INFORMS THE REQUIREMENT FOR TREE REPLACEMENT FOR EXISTING TREES, IS 1 NEW TREE FOR EVERY 6" CALIPER OF DBH REMOVED IF THE MINIMUM DENSITY REQUIRED OF CDDs 10.10 IS NOT MET. RESULTINGLY, BECAUSE PROJECT PROPOSES TO REMOVE 58" DBH OF THE EXISTING TREES THE REQUIRED REPLACEMENT QUANTITY IS (58"/6") 10 TREES.

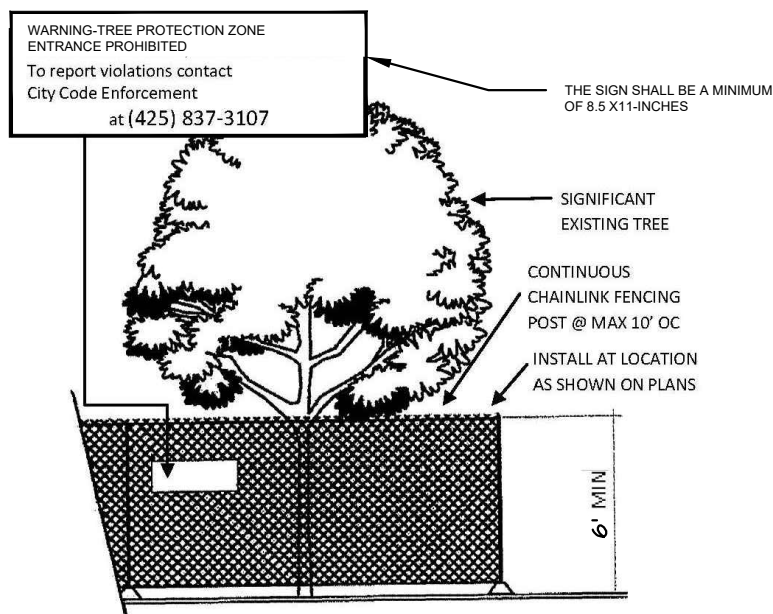
SINCE THE MINIMUM TREE DENSITY IS 29 AND THE PROJECT PROPOSES TO RETAIN 2 AND REPLACE THE REMOVED TREES WITH 10 NEW TREE, THE PROJECT STILL THEN NEEDS TO ADD (29-2-10=) 17 TREES OF SIGNIFICANT / 6" CALIPER SIZE, EQUIVALENT TO 51 TREES OF 2" CALIPER SIZE DECIDUOUS OR 7-8' HEIGHT SIZE CONIFEROUS.

TREE PROTECTION

NOTE: THE EXISTING CONDITION WITHIN THE CRITICAL ROOT ZONES OF TREES #4 AND #10 IS THAT OF COMPACTED GRAVEL OR PAVEMENT AS DRIVEWAYS AND WALKWAYS. CONSTRUCTION ACCESS WILL BE THROUGH THESE EXISTING PAVED SECTIONS UNTIL THE DRIVE ACCESS ON THE NORTH SIDE IS CONSTRUCTED. CONSTRUCTION ACTIVITIES WILL FOLLOW IMC 18.12.140.N.4 (CITED BELOW). IN ADDITION, PROTECTION AND MAINTENANCE OF THE TWO TREES WILL BE UNDER THE DIRECTION OF AN ARBORIST THROUGHOUT THE PROJECT CONSTRUCTION PERIOD.

- IMC 18.12.140.N TREE AND VEGETATION PROTECTION:
4. FOR SIGNIFICANT TREES, TREE STANDS AND EXISTING VEGETATION, THE FOLLOWING ADDITIONAL REQUIREMENTS SHALL BE MET TO PROTECT VEGETATION FROM DEVELOPMENT IMPACTS DURING CONSTRUCTION:
- A. THE APPLICANT SHALL NOT FILL, EXCAVATE, STACK OR STORE ANY EQUIPMENT OR COMPACT THE EARTH IN ANY WAY WITHIN THE AREA DEFINED BY THE DRIPLINE OF ANY TREE TO BE RETAINED.
  - B. THE APPLICANT SHALL CONSTRUCT A TEMPORARY BUT IMMOVABLE FOUR (4) FOOT HIGH STURDY FENCE AROUND EACH TREE OR NATIVE VEGETATED AREA TO BE RETAINED GENERALLY CORRESPONDING TO THE CRITICAL ROOT ZONE OF THE TREES.
  - C. THE APPLICANT MAY NOT INSTALL IMPERVIOUS SURFACE MATERIAL WITHIN THE AREA DEFINED BY THE DRIPLINE OF ANY TREES TO BE RETAINED UNLESS SPECIFICALLY APPROVED BY THE PLANNING DIRECTOR/MANAGER.
  - D. THE GRADE LEVEL AROUND ANY TREE TO BE RETAINED MAY NOT BE LOWERED BY MORE THAN TWO-THIRDS (2/3) OF THE AREA DEFINED BY THE CRITICAL ROOT ZONE OF THE TREE. IF THE GRADE LEVEL AROUND A TREE TO BE RETAINED IS TO BE RAISED, THE APPLICANT SHALL CONSTRUCT A DRY ROCK WALL OR ROCK WELL AROUND THE TREE. THE DIAMETER OF THIS WALL OR WELL MUST BE EQUAL TO THE DIAMETER OF THE TREE'S DRIPLINE.

NOTE: SEE DAVEY RESOURCE GROUP INC MEMO FOR TREE PROTECTION ADJUSTMENTS AUGUST 28, 2022 FOR SUPPLEMENT INFORMATION.



- WHERE PROPER SOIL EXCAVATION AND ROOT PRUNING TAKES PLACE, THE TREE PROTECTION ZONE (TPZ) FENCING MAY BE INSTALLED CLOSER TO THE TRUNK AND WILL NEED TO BE DETERMINED BY THE SITE ARBORIST AT THE TIME OF INSTALLATION.
- TREE PROTECTION FENCING WILL BE MODIFIED TO ALLOW FOR REASONABLE ENCROACHMENT INTO THE TPZ SO THAT SITE WORK CAN BE COMPLETED.
- TPZ SHALL BE A MINIMUM OF 6 FOOT HIGH CHAIN LINK FENCE AND MOUNTED ON TWO INCH DIAMETER METAL POSTS AT NO MORE THAN 10-FOOT SPACINGS. MOVABLE BARRIERS OF CHAIN LINK FENCING SECURED TO CEMENT BLOCKS MAY BE SUBSTITUTED FOR 'FIXED' FENCING IF THE PROJECT ARBORIST AGREES THAT THE FENCING WILL HAVE TO BE MOVED TO ACCOMMODATE CERTAIN PHASES OF CONSTRUCTION.
- A WARNING SIGN SHALL BE PROMINENTLY DISPLAYED ON EACH FENCE. THE SIGN SHALL BE A MINIMUM OF 8.5 X 11-INCHES AND CLEARLY STATE: 'WARNING - TREE PROTECTION ZONE'. THIS FENCE SHALL NOT BE REMOVED AND ANY INJURY TO THIS OR THESE TREES IS SUBJECT TO PENALTY.
- TPZs SHALL BE CONSTRUCTED IN SUCH A FASHION AS TO NOT BE EASILY MOVED OR DISMANTLED AND SHALL REMAIN IN PLACE FOR THE ENTIRETY OF THE PROJECT AND ONLY REMOVED, TEMPORARILY OR OTHERWISE, BY AN ISA CERTIFIED ARBORIST AFTER SUBMISSION AND APPROVAL OF INTENT.
- TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING AND COVERED WITH SOIL AS SOON AS POSSIBLE.
- NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. WORK WITHIN THE PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.

TREE PROTECTION FENCING DETAIL

N.T.S.

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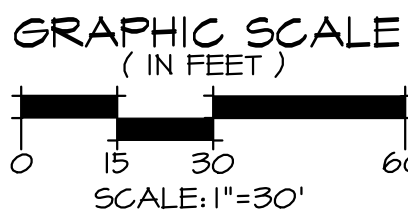
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TREE RETENTION PLAN



PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND
- WETLAND BUFFER - REDUCED (63.75-FT)
- STREAM ORDINARY HIGH WATER MARK (OHWM)
- STREAM BUFFER - STANDARD (100-FT)
- STREAM BUFFER - REDUCED (75-FT)
- PROPOSED 15-FT BUILDING SET BACK LIMITS (BSBL)
- EXISTING TREES
- EXISTING TREES TO BE REMOVED
- REMOVABLE CONSTRUCTION CRITICAL AREA AND TREE PROTECTION FENCE (6' HIGH CHAIN LINK FENCE) \*
- CRITICAL AREA FENCE / SPLIT RAIL FENCE

\* FENCE IS TEMPORARY AND SUBJECT TO REASONABLE ON-SITE MODIFICATION UNDER THE SUPERVISION OF AN ARBORIST. SEE TREE PROTECTION FENCE DETAIL ON M3.0 FOR DETAILED PROTECTION METHODS.

TREE RETENTION TABLE

TAG #	SPECIES	DBH	HEIGHT	AVERAGE CANOPY DIAMETER (FT)	CONDITION	PRESERVATION PRIORITY	MAINTENANCE	SIGNIFICANCE	REMOVED
3	CL	19	85	21	FAIR	1		SIGNIFICANT	YES
4	CL	8+10=18	30	6	FAIR	3		SIGNIFICANT	NO
6	PD	11	25	8	FAIR	3	PRUNE DEAD BRANCHES	SIGNIFICANT	YES
7 *	PD	10	12	0	DEAD	4	REMOVE DEAD	SIGNIFICANT	YES
8	PM	28	90	24	GOOD	2	PRUNE LOW DEAD BRANCHES	SIGNIFICANT	YES
10	PM	19	95	12	GOOD	2	PRUNE LOW DEAD BRANCHES AND REMOVE HANGARS	SIGNIFICANT	NO

\* TREE NOT COUNTED TOWARDS RETENTION DUE TO DEAD CONDITION

TREE RETENTION CALCULATION

TOTAL SIGNIFICANT TREE DBH 45"

PER CDDs 10.13 RETENTION REQUIRED 25% OF THE TOTAL DBH OF SIGNIFICANT TREES IN DEVELOPABLE SITE AREA 45" X 25% = 23.75"

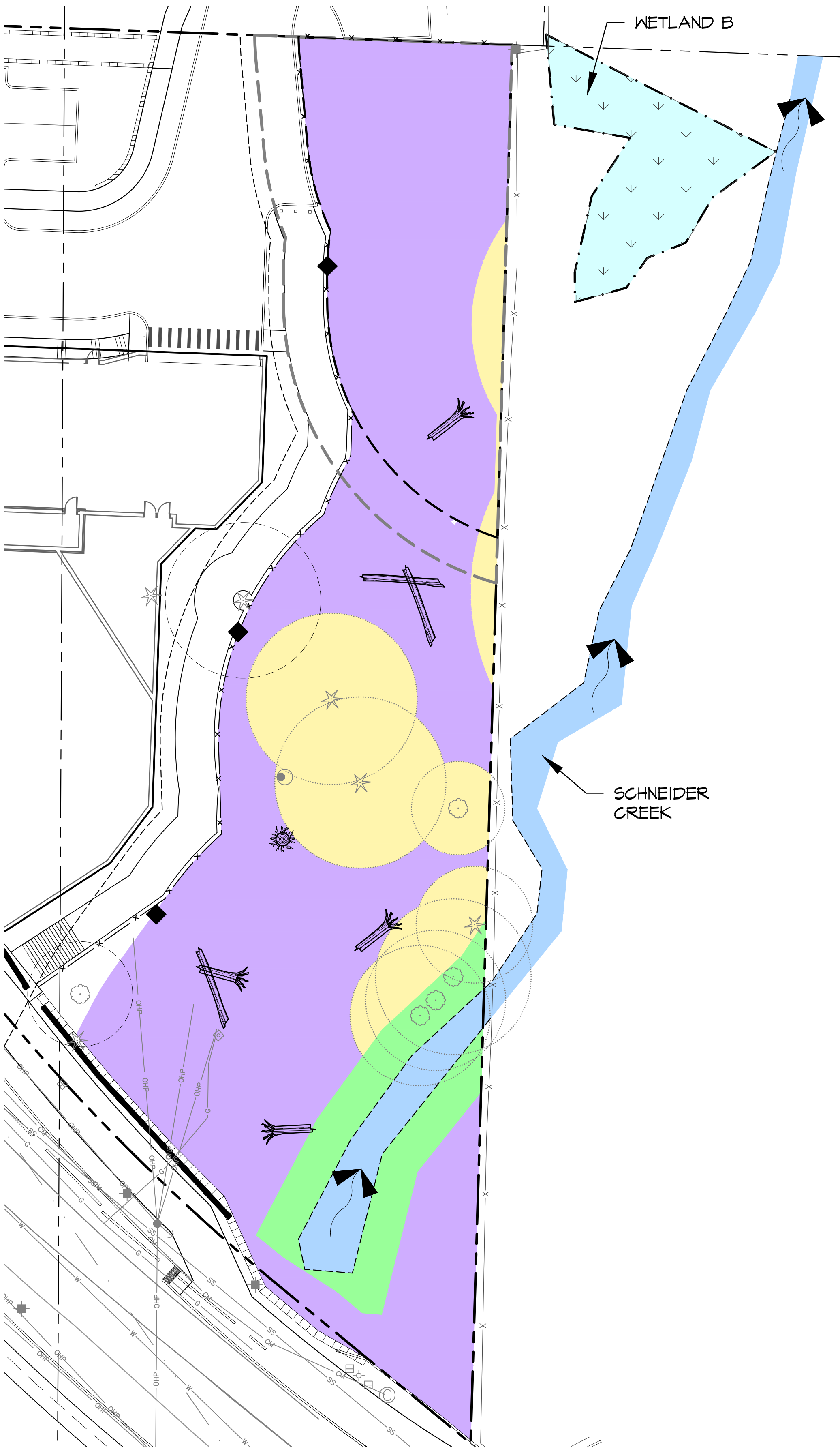
TOTAL RETAINED DBH 37"

CRITICAL AREAS MITIGATION PLAN  
TREE RETENTION PLAN  
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ISSAGUAH, WASHINGTON

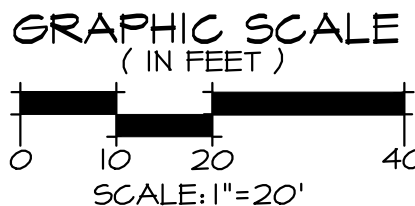


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Sheet #	M3.0	





PLANTING PLAN




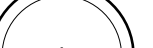



PLAN LEGEND








- PROPERTY LINE
- EXISTING WETLAND
- WETLAND BUFFER - STANDARD (75-FT)
- STREAM ORDINARY HIGH WATER MARK (OHWM)
- STREAM BUFFER - REDUCED
- BUILDING SET BACK LIMIT (BSBL) - 15 FT
- EXISTING TREES TO REMAIN
- DECIDUOUS - CONIFER
- PROPOSED CRITICAL AREA FENCE

HABITAT FEATURES LEGEND

- WOODY DEBRIS (DOWN LOGS)
- STUMP - SEE DETAIL

PLANT SCHEDULE

LARGE TREES		QTY							
	SCIENTIFIC NAME	COMMON NAME	WL STATUS	AREA 1	AREA 2	AREA 3	SPACING	SIZE (MIN.)	NOTES
	ACER MACROPHYLLUM	BIG LEAF MAPLE	FACU	-	10	-	AS SHOWN	5-6' HT.	SINGLE TRUNK, WELL BRANCHED
	BETULA PapyRIFERA	PAPER BIRCH	FAC	8	-	-	AS SHOWN	5-6' HT.	SINGLE TRUNK, WELL BRANCHED
	PRUNUS EMARGINATA	BITTERCHERRY	FACU	-	10	-	AS SHOWN	5-6' HT.	SINGLE TRUNK, WELL BRANCHED
	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	FACU	-	38	-	AS SHOWN	4-5' HT.	B&B, FULL & BUSHY
	THUJA PLIGATA	WESTERN RED CEDAR	FAC	-	83	-	AS SHOWN	4-5' HT.	B&B, FULL & BUSHY

SMALL TREES/LARGE SHRUBS			QTY						
	SCIENTIFIC NAME	COMMON NAME	WL STATUS	AREA 1	AREA 2	AREA 3	SPACING	SIZE (MIN.)	NOTES
	ACER CIRCINATUM	VINE MAPLE	FAC	-	10	25	AS SHOWN	4' HT.	SINGLE TRUNK, WELL BRANCHED
	AMELANCHIER ALNIFOLIA	SERVICEBERRY	FACU	-	10	-	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	CORYLUS CORNUTA	WESTERN HAZELNUT	FACU	-	29	35	AS SHOWN	4-5' HT.	SINGLE TRUNK, WELL BRANCHED
	CRATAEGUS DOUGLASII	BLACK HAWTHORN	FAC	-	-	35	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	OEMLERIA CERASIFORMIS	INDIAN PLUM	FAU	-	40	30	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)
	SALIX SCOULERIANA	SCOULER WILLOW	FAC	30	-	-	3/SYMBOL	4' CUTTING	1" DIA. MIN, BARK INTACT
	SAMBUCUS RACEMOSA	RED ELDERBERRY	FACU	-	10	10	5' O.C.	24" HT.	MULTI-CANE (3 MIN.)

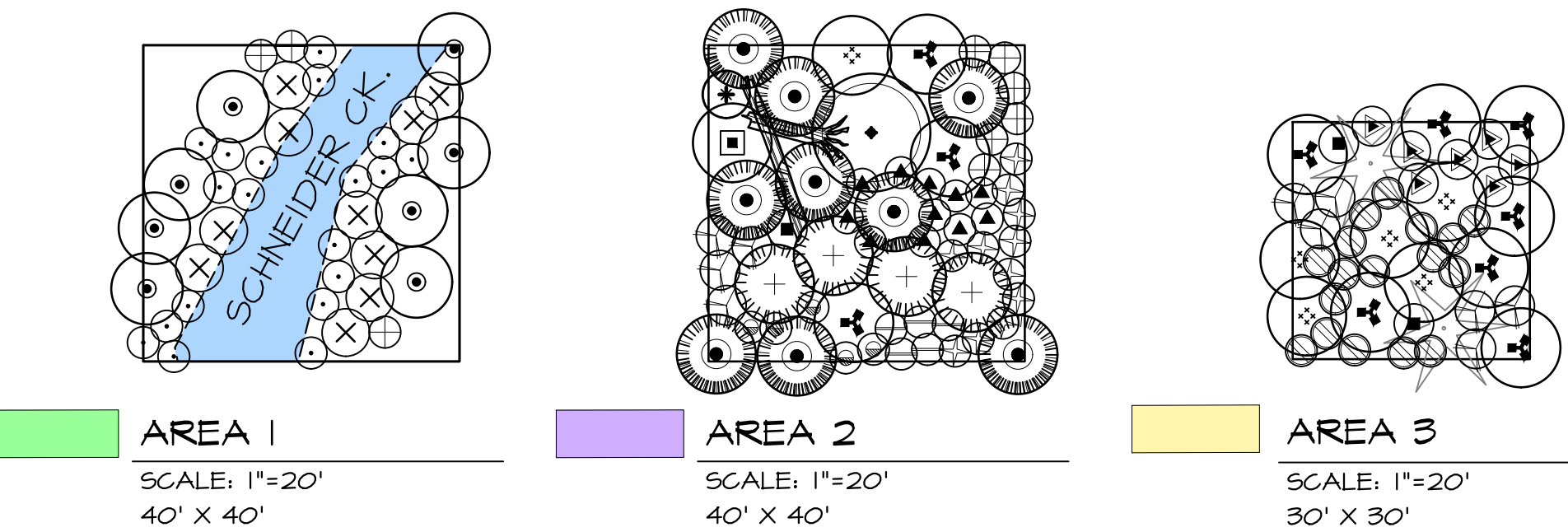
MASSING SHRUBS			QTY						
	SCIENTIFIC NAME	COMMON NAME	WL STATUS	AREA 1	AREA 2	AREA 3	SPACING	SIZE (MIN.)	NOTES
⊙	CORNUS ALBA	RED-OSIER DOGWOOD	FACW	19	-	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
▲	LONICERA INVOLUCRATA	BLACK TWIN-BERRY	FAC	-	110	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
⊕	ROSA NUTKANA	NOOTKA ROSE	FAC	3	60	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
⊕	ROSA PISOCARPA	CLUSTERED WILD ROSE	FAC	-	110	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)
⊗	RUBUS PARVIFLORUS	THIMBLEBERRY	FACU	-	50	-	4' O.C.	1 GAL.	FULL & BUSHY
⊗	RUBUS SPECTABILIS	SALMONBERRY	FAC	-	-	85	4' O.C.	1 GAL.	FULL & BUSHY
⊖	SYMPHORICARPOS ALBUS	COMMON SNOWBERRY	FACU	-	50	-	4' O.C.	1 GAL.	MULTI-CANE (3 MIN.)

GROUND COVER		QTY						
SCIENTIFIC NAME	COMMON NAME	WL STATUS	AREA 1	AREA 2	AREA 3	SPACING	SIZE (MIN.)	NOTES
GAULTHERIA SHALLON	SALAL	FACU	216	1,860	506	22" O.C.	1 GAL.	FULL & BUSHY
POLYSTICHUM MUNIUM	SWORD FERN	FACU	216	1,860	506	22" O.C.	1 GAL.	FULL & BUSHY

PLANTING DENSITY TABLE

	REQUIRED	PROPOSED
TREE PLANTING AREA	10,432 SF	
AREA WITHOUT TREES	1,726 SF	
TOTAL PLANTED AREA	20,658 SF	
TREES 9' O.C.	227	248
SHRUBS 6' O.C.	578	652
GROUND COVER 4' O.C.	5,164	5,164

PLANTING TYPICAL



NOT FOR CONSTRUCTION  
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:  
SUBJECT TO REVISION



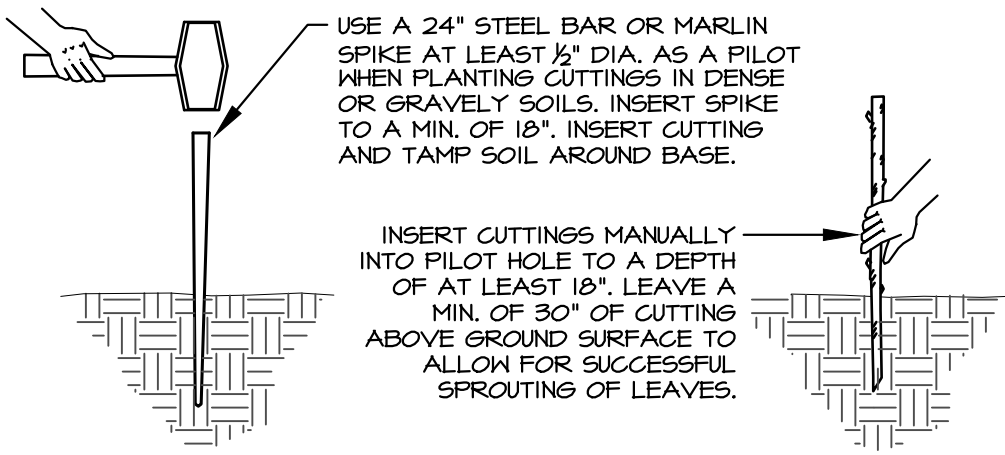
NOTES

- SURVEY PROVIDED BY CORE DESIGN, 12100 145TH ST, SUITE 300, BOTHELL, WA 98011, (425) 885-7877.
- SITE PLAN PROVIDED BY CORE DESIGN, 12100 NE 145TH ST, SUITE 300, (425) 885-7877.
- SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
- THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN SEPT, 2021.

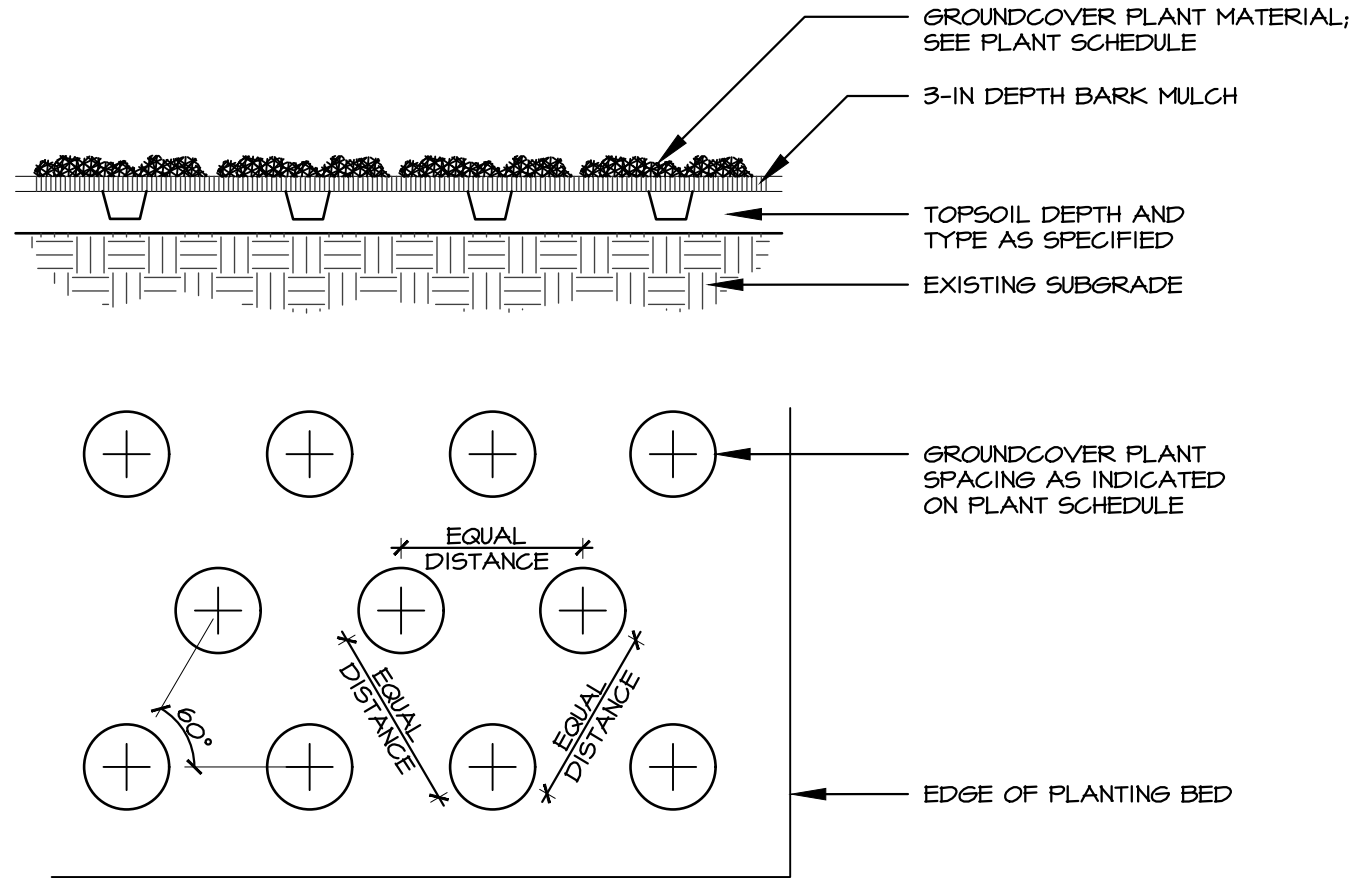
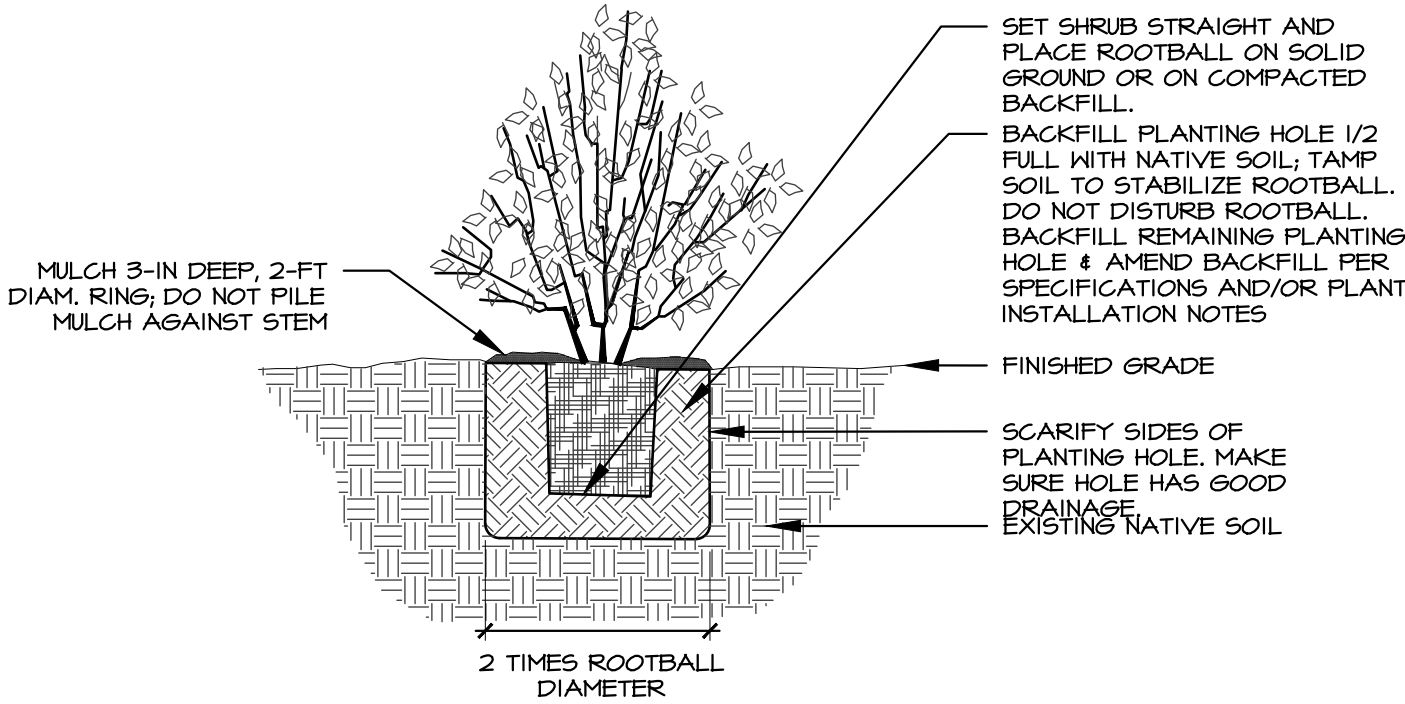
CRITICAL AREAS MITIGATION PLAN  
PLANTING PLAN  
MILANO ISSAGUAH APARTMENTS PROJECT  
ISSAGUAH, WASHINGTON

Revisions	Date	By
NEW SITE PLAN	3-17-2022	FH
IMPACTS UPDATE	4-27-2022	SL
CITY COMMENTS	6-23-2022	TH
SITE PLAN REV 3	9-15-2022	TH
Date	11-12-2021	
Scale	AS NOTED	
Designed	FH	
Drawn	FH, TH, KE	
Checked	FH	
Approved	FH	
Project	#1216	
Sheet	#	W5.0

TALASAEA  
CONSULTANTS, INC.  
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15030 Bear Creek Road Northeast - Woodinville, Washington 98077  
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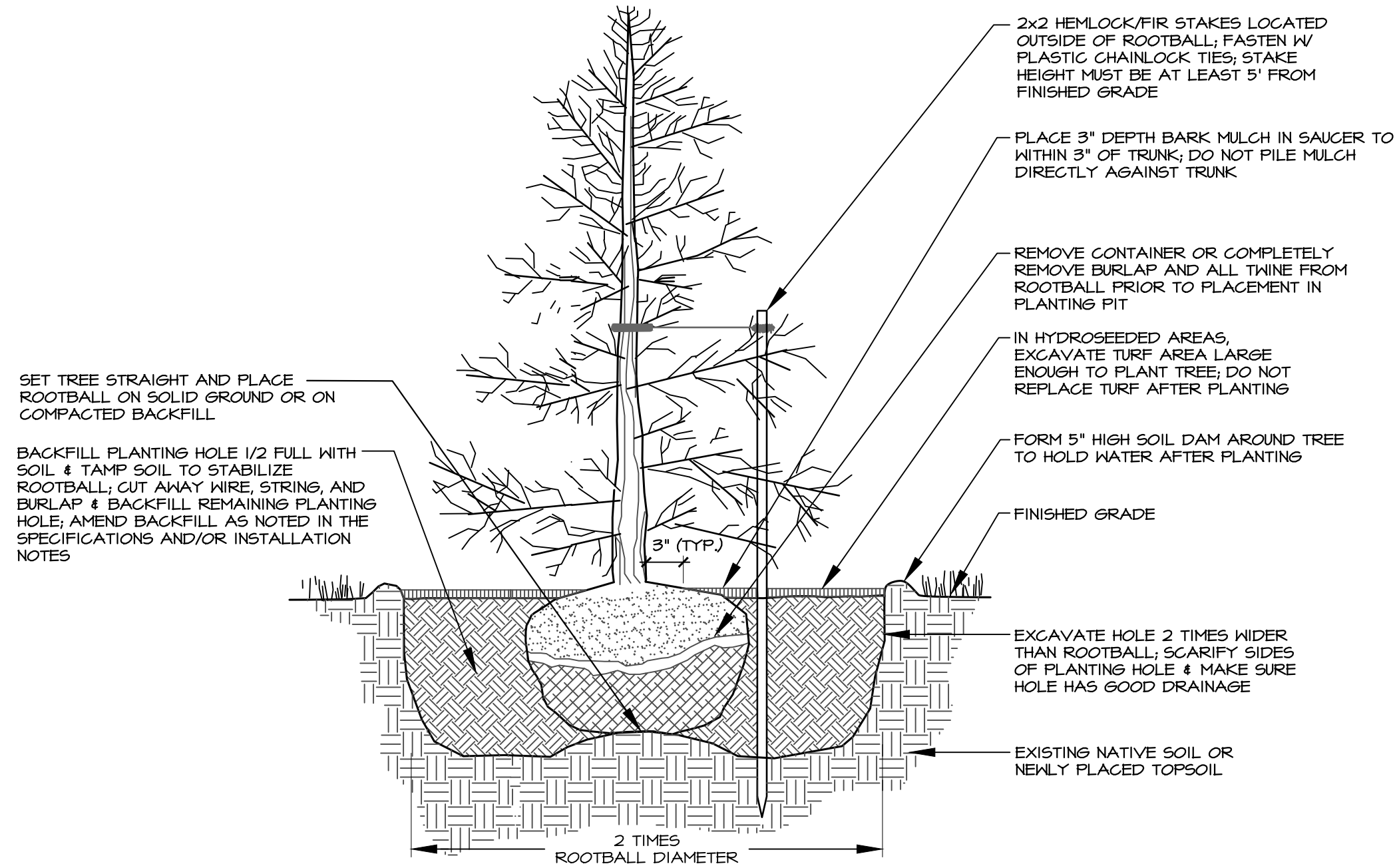
- NOTES:
- CUTTINGS SHALL BE SPECIES AS NOTED IN THE PLANT SCHEDULE.
  - CUTTINGS SHALL BE AT LEAST 1/2" IN DIA. AND 4' IN LENGTH.
  - CUTTINGS MUST BE MADE FROM LIVE AND VIGOROUS WOODY MATERIAL WITH SIDE BRANCHES REMOVED AND BARK INTACT.
  - THE BUTT ENDS SHALL BE CLEANLY CUT AT AN ANGLE FOR EASY INSERTION INTO THE SOIL.
  - THE TOP SHALL BE CUT SQUARE OR BLUNT.
  - CUTTINGS SHALL BE PLANTED WITHIN 24 HOURS OF CUTTING AND MUST BE KEPT MOIST AT ALL TIMES PRIOR TO PLANTING.
  - BOTTOM OF CUTTINGS SHALL BE TREATED WITH ROOTING HORMONE PRIOR TO PLANTING.



1 CUTTING INSTALLATION DETAIL  
N.T.S.

2 CONTAINER SHRUB PLANTING DETAIL  
N.T.S.

3 GROUNDCOVER INSTALLATION DETAIL  
N.T.S.



4 B&B CONIFER TREE PLANTING DETAIL  
N.T.S.

NOT FOR CONSTRUCTION

THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:

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Know what's below.  
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NOTES

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CRITICAL AREAS MITIGATION PLAN  
PLANTING DETAILS  
MILANO ISSAGUAH APARTMENTS PROJECT  
ISSAGUAH, WASHINGTON

Revisions	Date	By
NEW SITE PLAN	3-17-2022	FH
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Checked	TFP	
Approved	TFP	
Project #	1216	
Sheet #	W5.1	

PLANTING SPECIFICATIONS

PART 1: GENERAL

1.1 SEQUENCING

A. GENERAL CONSTRUCTION

1. CONTRACTOR SHALL GIVE THE PROJECT BIOLOGIST OR ECOLOGIST A MINIMUM OF TEN (10) DAYS NOTICE PRIOR TO COMMENCING CONSTRUCTION.
2. NO CONSTRUCTION WORK SHALL COMMENCE UNTIL THERE IS A MEETING BETWEEN THE CLIENT, THE PROJECT BIOLOGIST OR ECOLOGIST, THE GENERAL, CLEARING, AND/OR EARTHWORK CONTRACTORS, AND THE LANDSCAPE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT AND THE SPECIFIC DETAILS RELATED TO THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONSTRAINTS.
3. LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO: (1) INDEPENDENTLY VERIFY THE ACCURACY OF UTILITY LOCATIONS, AND (2) DISCOVER AND AVOID ANY UTILITIES WITHIN THE MITIGATION AREA(S) THAT ARE NOT SHOWN, BUT WHICH MAY BE AFFECTED BY IMPLEMENTATION OF THE PLAN. SUCH AREA(S) ARE TO BE CLEARLY MARKED IN THE FIELD. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL RESOLVE ANY CONFLICTS WITH THE APPROVED GRADING PLAN PRIOR TO START OF CONSTRUCTION.
4. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS, AND SHALL REMAIN ON SITE UNTIL PROJECT COMPLETION.
5. CONSTRUCTION MUST BE PERFORMED IN ACCORDANCE WITH ALL AGENCY STANDARDS, RULES, CODES, PERMIT CONDITIONS, AND/OR OTHER APPLICABLE ORDINANCES AND POLICIES.
6. THE PROJECT OWNER/APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER RELATED OR REQUIRED PERMITS PRIOR TO THE START OF CONSTRUCTION.
7. A QUALIFIED WETLAND CONSULTANT SHALL BE ON SITE, AS NECESSARY, TO MONITOR CONSTRUCTION AND APPROVE MINOR REVISIONS TO THE PLAN.
8. DURING CONSTRUCTION, THE CONTRACTOR MUST USE MATERIALS AND CONSTRUCTION METHODS THAT PREVENT TOXIC SUBSTANCES AND OTHER POLLUTANTS FROM ENTERING MITIGATION AREAS OR OTHER NATURAL WATERS OF THE STATE.
9. PREVENTATIVE MEASURES SHALL BE USED TO PROTECT EXISTING STORM DRAINAGE SYSTEMS, EXISTING UTILITIES, AND ROADS.
10. PROVIDE SEDIMENT AND EROSION CONTROLS AROUND THE PROJECT AREA PRIOR TO SOIL DISTURBANCE FROM CONSTRUCTION ACTIVITY.

B. MITIGATION CONSTRUCTION. THE FOLLOWING PROVIDES THE GENERAL SEQUENCE OF ACTIVITIES ANTICIPATED TO BE NECESSARY TO COMPLETE THE PLANTING PORTION OF THE MITIGATION PROJECT. SOME OF THESE ACTIVITIES MAY BE CONDUCTED CONCURRENTLY AS THE PROJECT PROGRESSES.

1. CONDUCT A SITE MEETING BETWEEN THE CONTRACTOR, THE PROJECT BIOLOGIST OR ECOLOGIST, AND THE OWNER'S REPRESENTATIVE TO REVIEW THE PROJECT PLANS, STAGING/STOCKPILE AREAS, AND MATERIAL DISPOSAL AREAS.
2. PLANT TREES AND SHRUBS AS INDICATED ON MITIGATION PLANS.
3. PLANT WETLAND EMERGENTS AND STAKES (CUTTINGS).
4. INSTALL HABITAT FEATURES
5. MULCH PLANTS INSTALLED IN NON-GRADED BUFFER AREAS.
6. INSTALL TEMPORARY IRRIGATION SYSTEM AND PROGRAM FOR 0.5 INCHES OF WATER EVERY 3 DAYS.
7. INSTALL FENCING AND CRITICAL AREA PROTECTION SIGNS.

1.2 SUBMITTALS

A. PRODUCT DATA. FURNISH THE FOLLOWING WITH EACH PLANT MATERIAL DELIVERY:

1. INVOICES INDICATING SIZES AND VARIETY OF PLANT MATERIAL.
2. CERTIFICATES OF INSPECTION REQUIRED BY STATE AND FEDERAL AGENCIES.

B. QUALITY CONTROL SUBMITTALS.

1. PRIOR TO DELIVERY OF MATERIALS, CERTIFICATES OF COMPLIANCE ATTESTING THAT MATERIALS MEET THE SPECIFIED REQUIREMENTS SHALL BE FURNISHED FOR THE FOLLOWING: PLANTS, TOPSOIL, FERTILIZER, AND ORGANIC MULCH. CERTIFIED COPIES OF THE MATERIAL CERTIFICATES SHALL INCLUDE THE FOLLOWING:
  - a. PLANT MATERIALS: BOTANICAL NAME, COMMON NAME, SIZE, QUANTITY BY SPECIES, AND LOCATION WHERE GROWN.
  - b. IMPORTED TOPSOIL: PARTICLE SIZE, PH, ORGANIC MATTER CONTENT, TEXTURAL CLASS, SOLUBLE SALTS, CHEMICAL AND MECHANICAL ANALYSES.
  - c. FERTILIZER: CHEMICAL ANALYSIS AND PERCENT COMPOSITION.
  - d. IMPORTED MULCH: COMPOSITION AND SOURCE.

1.3 REFERENCES

A. SIZE AND GRADING STANDARDS. SHALL CONFORM TO THE CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.

1.4 QUALITY ASSURANCE

A. WORKER'S QUALIFICATIONS. THE PERSONS PERFORMING THE PLANTING AND THEIR SUPERVISOR(S) SHALL BE PERSONALLY EXPERIENCED WITH PLANTING AND CARING FOR PLANT MATERIAL, AND SHALL HAVE BEEN REGULARLY EMPLOYED BY A COMPANY ENGAGED IN PLANTING AND CARING FOR PLANT MATERIAL FOR A MINIMUM OF 2 YEARS.

B. PLANT MATERIAL. ALL PLANT MATERIALS SHALL BE LOCALLY GROWN OR REGIONALLY ACCLIMATIZED TO THE PACIFIC NORTHWEST.

1.5 DELIVERY, INSPECTION, STORAGE AND HANDLING

A. DELIVERY. A DELIVERY SCHEDULE SHALL BE PROVIDED AT LEAST 10 CALENDAR DAYS PRIOR TO THE FIRST DAY OF DELIVERY. PLANT MATERIALS SHALL BE DELIVERED TO THE JOB SITE NOT MORE THAN 7 WORKING DAYS PRIOR TO THEIR RESPECTIVE PLANTING DATES.

B. PROTECTION DURING DELIVERY. PLANT MATERIAL SHALL BE PROTECTED DURING DELIVERY TO PREVENT DESICCATION AND DAMAGE TO THE BRANCHES, TRUNK, ROOT SYSTEM, OR EARTH BALL. BRANCHES SHALL BE PROTECTED BY TYING-IN EXPOSED BRANCHES SHALL BE COVERED DURING TRANSPORT.

C. FERTILIZER. FERTILIZER SHALL BE DELIVERED IN MANUFACTURER'S STANDARD SIZED BAGS SHOWING WEIGHT, ANALYSIS, AND MANUFACTURER'S NAME. STORE UNDER A WATERPROOF COVER OR IN A DRY PLACE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE.

D. INSPECTION. ALL PLANT MATERIALS SHALL BE INSPECTED UPON ARRIVAL AT THE JOB SITE BY THE OWNER'S REPRESENTATIVE FOR CONFORMITY TO TYPE AND QUANTITY WITH REGARD TO THEIR RESPECTIVE SPECIFICATIONS.

E. MULCH. A MULCH SAMPLE SHALL BE INSPECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO THE MULCH BEING DELIVERED TO THE SITE.

F. STORAGE.

1. PLANT MATERIAL NOT INSTALLED ON THE DAY OF ARRIVAL AT THE SITE SHALL BE STORED AND PROTECTED IN DESIGNATED AREAS. PLANTS STORED ON THE PROJECT SITE SHALL BE PROTECTED FROM EXTREME WEATHER CONDITIONS BY INSULATING THE ROOTS, ROOT BALLS OR CONTAINERS WITH SANDUST, SOIL, COMPOST, BARK OR WOODCHIPS. PLANT MATERIAL SHALL BE PROTECTED FROM DIRECT EXPOSURE TO WIND AND SUN. BARE-ROOT PLANT MATERIAL SHALL BE HEELED-IN. CUTTINGS AND EMERGENT PLANTS MUST BE PROTECTED FROM DRYING AT ALL TIMES AND SHALL BE HEELED-IN WITH MOIST SOIL OR OTHER INSULATING MATERIAL. ALL PLANT MATERIAL STORED ON-SITE SHALL BE WATERED DAILY UNTIL INSTALLED.
2. STORAGE OF OTHER MATERIALS SHALL BE IN DESIGNATED AREAS.

1.6 SCHEDULING

A. PLANTING SEASON. INSTALL WOODY PLANTS BETWEEN OCTOBER 1 AND FEBRUARY 15 WHENEVER THE TEMPERATURE IS ABOVE 32 DEGREES F AND THE SOIL IS IN A WORKABLE CONDITION, UNLESS OTHERWISE APPROVED IN WRITINGS. CUTTINGS SHALL ONLY BE USED IF PLANTING OCCURS BETWEEN DECEMBER 1ST AND APRIL 1ST.

B. PLANT INSTALLATION. EXCEPT FOR CONTAINER-GROWN PLANT MATERIAL, THE MAXIMUM TIME BETWEEN THE DIGGING AND INSTALLATION OF PLANT MATERIAL SHALL BE 21 DAYS. THE

MAXIMUM TIME BETWEEN PLANT INSTALLATION AND MULCH PLACEMENT SHALL BE 72 HOURS.

1.7 WARRANTY

A. WARRANTY PERIOD. THE CONTRACTOR-PROVIDED WARRANTY SHALL EXTEND FOR A PERIOD OF ONE YEAR FROM THE DATE OF PHYSICAL COMPLETION. PHYSICAL COMPLETION FOR THE WORK OF THIS SECTION IS THE DATE WHEN ALL GRADING, PLANTING, IRRIGATION, AND RELATED WORK HAS BEEN COMPLETED AND IS ACCEPTED BY THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

B. WARRANTY TERMS. CONTRACTOR'S WARRANTY SHALL INCLUDE REPLACEMENT OF PLANTS DUE TO MORTALITY (SAME SIZE AND SPECIES SHOWN ON THE DRAWINGS). PLANTS REPLACED UNDER THIS WARRANTY SHALL BE WARRANTED FOR AN ADDITIONAL YEAR AFTER REPLACEMENT.

C. EXCEPTIONS. LOSS DUE TO EXCESSIVELY SEVERE CLIMATOLOGICAL CONDITIONS (SUBSTANTIATED BY 10-YEAR RECORDED WEATHER CHARTS), OR CASES OF NEGLIGENCE BY OWNER, OR CASES OF ABUSE/DAMAGE BY OTHERS.

PART 2: PRODUCTS AND MATERIALS

2.1 PLANTS

A. GENERAL. ALL PLANT MATERIAL WILL CONFORM TO THE VARIETIES SPECIFIED OR SHOWN IN THE PLANT LIST(S) INDICATED ON THE MITIGATION PLANS AND BE TRUE TO BOTANICAL NAME AS LISTED IN: HITCHCOCK, C.L., AND A. CRONQUIST. 1973. FLORA OF THE PACIFIC NORTHWEST. UNIVERSITY OF WASHINGTON PRESS.

B. SHRUBS AND TREES.

1. THE PROJECT BIOLOGIST OR ECOLOGIST SHALL EXAMINE PLANT MATERIAL PRIOR TO PLANTING. ANY MATERIAL NOT MEETING THE REQUIRED SPECIFICATIONS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND REPLACED WITH LIKE MATERIAL THAT MEETS THE REQUIRED STANDARDS. PLANT MATERIAL SHALL MEET THE REQUIREMENTS OF STATE AND FEDERAL LAWS WITH RESPECT TO PLANT DISEASE AND INFESTATIONS. INSPECTION CERTIFICATES, REQUIRED BY LAW, SHALL ACCOMPANY EACH AND EVERY SHIPMENT AND SHALL BE SUBMITTED TO THE PROJECT BIOLOGIST OR ECOLOGIST UPON CONTRACTOR'S RECEIPT OF PLANT MATERIAL.

2. PLANT MATERIALS SHALL BE LOCALLY GROWN (WESTERN WASHINGTON, WESTERN OREGON, OR WESTERN BC), HEALTHY, BUSHY, IN VIGOROUS GROWING CONDITION, AND GUARANTEED TO BE TRUE TO SIZE, NAME, AND VARIETY. IF REPLACEMENT OF PLANT MATERIAL IS NECESSARY DUE TO CONSTRUCTION DAMAGE OR PLANT FAILURE WITHIN ONE YEAR OF INSTALLATION, THE SIZES, SPECIES, AND QUANTITIES SHALL BE EQUAL TO SPECIFIED PLANTS, AS INDICATED ON THE PLANS.

3. PLANTS SHALL BE NURSERY GROWN, WELL-ROOTED, OF NORMAL GROWTH AND CHARACTER, AND FREE FROM DISEASE OR INFESTATION. THE PROJECT BIOLOGIST OR ECOLOGIST RESERVES THE RIGHT TO REQUIRE REPLACEMENT OR SUBSTITUTION OF ANY PLANTS DEEMED UNSUITABLE.

4. TREES SHALL HAVE UNIFORM BRANCHING, SINGLE STRAIGHT TRUNKS (UNLESS SPECIFIED AS MULTI-STEM, MULTI-CANE, OR MULTI-TRUNK), AND AN INTACT AND UNDAMAGED CENTRAL LEADER. CONTAINER STOCK SHALL HAVE BEEN GROWN IN A CONTAINER FOR AT LEAST ONE FULL GROWING SEASON AND SHALL HAVE A WELL DEVELOPED ROOT SYSTEM. PLANT MATERIAL THAT IS ROOT-BOUND OR HAS DAMAGED ROOT ZONES OR BROKEN ROOT BALLS WILL NOT BE ACCEPTED.

5. CONIFEROUS TREES SHALL BE NURSERY GROWN, FULL AND BUSHY, WITH UNIFORM BRANCHING AND A NATURAL, NON-SHEARED FORM. ORIGINAL CENTRAL LEADER MUST BE HEALTHY AND UNDAMAGED. MAXIMUM GAP BETWEEN BRANCHING SHALL NOT EXCEED 4 INCHES, AND LENGTH OF TOP LEADER SHALL NOT EXCEED 12 INCHES.

6. SHRUBS SHALL HAVE A MINIMUM OF THREE STEMS AND SHALL BE A MINIMUM HEIGHT OF 18 INCHES.

7. TREES AND SHRUBS SHALL HAVE DEVELOPED ROOT AND BRANCH SYSTEMS. DO NOT PRUNE BRANCHES BEFORE DELIVERY.

8. NATIVE PLANT CUTTINGS SHALL BE GROWN AND COLLECTED IN THE MARITIME PACIFIC NORTHWEST. CUTTINGS SHALL BE OF ONE TO TWO-YEAR-OLD WOOD, ½ INCH DIAMETER MINIMUM. CUTTINGS SHALL BE A MINIMUM OF 4 FEET IN LENGTH WITH 4 LATERAL BUDS EXPOSED ABOVE GROUND AFTER PLANTING. THE TOP OF EACH CUTTING SHALL BE A MINIMUM OF 1 INCH ABOVE A LEAF BUD, THE BOTTOM CUT 2 INCHES BELOW A BUD. THE BASAL ENDS OF THE CUTTINGS SHALL BE CUT AT A 45 DEGREE ANGLE AND MARKED CLEARLY SO THAT THE ROOTING END IS PLANTED IN THE SOIL. CUTTINGS MUST BE KEPT COVERED AND MOIST DURING STORAGE AND TRANSPORT, AND NO CUTTINGS SHALL BE STORED MORE THAN THREE DAYS FROM DATE OF CUTTING. CUTTINGS SHALL ONLY BE USED IF PLANTING OCCURS BETWEEN DECEMBER 1ST AND APRIL 1ST. FOR PLANTING BETWEEN APRIL 1ST AND DECEMBER 1ST, CONTAINER PLANTS SHALL BE USED.

9. PLANTS SHALL BE FREE OF SPLITS AND CHECKS, BARK ABRASIONS, AND DISFIGURING KNOTS.

10. FOR DECIDUOUS PLANTS, BUDS SHALL BE INTACT AND REASONABLY CLOSED AT TIME OF PLANTING, IF DORMANT.

11. BALLED AND BURLAPPED PLANTS SHALL HOLD A NATURAL BALL. MANUFACTURED ROOT BALLS ARE UNACCEPTABLE.

12. PLANTS SHALL CONFORM TO SIZES INDICATED ON THE PLANT SCHEDULE. PLANTS MAY BE LARGER THAN THE MINIMUM SIZES SPECIFIED.

C. WETLAND EMERGENT PLANTS.

1. SPECIES OF EMERGENT PLANTS SHALL BE PROVIDED AS DESCRIBED ON THE MITIGATION PLANS.

2. HERBACEOUS PLANTS SPECIFIED AS CLUMP DIVISIONS SHALL BE WELL-ROOTED PORTIONS OF MATURE PLANTS WITH A MINIMUM HEIGHT OF 6 INCHES OF VIGOROUS, VEGETATIVE GROWTH ABOVE THE GROUND SURFACE. OTHER HERBACEOUS PLANTS, OTHER THAN CLUMP DIVISIONS, SHALL BE DORMANT PROPAGULES SUCH AS RHIZOMES, TUBERS, CORMS, AND BULBS. PROPAGULE SHOOTS SHALL EXHIBIT TURGOR AND BE LIGHT IN COLOR, AND PROPAGULE BODIES SHALL BE RIDGID TO THE TOUCH. IF THE BODIES OF THE PROPAGULES ARE SOFT AND MUSHY AND THE SHOOTS LACK TURGOR AND ARE DARK IN COLOR, THE PLANT MATERIALS SHALL BE REJECTED.

3. RHIZOMES, TUBERS, CORMS, AND BULBS SHALL HAVE A MINIMUM DIAMETER OF 1½ INCHES.

D. NOXIOUS SPECIES. ALL PLANT STOCK AND OTHER RE-VEGETATION MATERIALS SHALL BE FREE FROM THE SEED OR OTHER PLANT COMPONENTS OF ANY NOXIOUS OR INVASIVE SPECIES, AS IDENTIFIED BY THE KING COUNTY NOXIOUS WEED CONTROL BOARD.

E. SUBSTITUTIONS. SUBSTITUTIONS WILL NOT BE PERMITTED WITHOUT A WRITTEN REQUEST AND APPROVAL FROM THE OWNER'S REPRESENTATIVE, THE PROJECT BIOLOGIST OR ECOLOGIST, AND APPLICABLE AGENCIES.

2.2 PLANTING SOIL

A. TOPSOIL. IF SUITABLE STOCKPILED NATIVE TOPSOIL IS NOT AVAILABLE FOR MITIGATION PLANTINGS, TOPSOIL SHALL BE OBTAINED FROM OUTSIDE SOURCES. STOCKPILED OR IMPORTED TOPSOIL SHALL BE FERTILE, FRIABLE, SANDY LOAM SURFACE SOIL, FREE OF SUBSOIL, CLAY LUMPS, BRUSH, WEEDS, ROOTS, STUMPS, STONES LARGER THAN 1 INCH IN ANY DIMENSION, LITTER, OR ANY OTHER EXTRANEIOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH. CERTIFIED WEED FREE SOIL WILL BE IMPORTED FROM CEDAR GROVE.

B. ORGANIC CONTENT. IMPORTED TOPSOIL SHALL CONSIST OF ORGANIC MATERIALS AMENDED AS NECESSARY TO PRODUCE A BULK ORGANIC CONTENT OF AT LEAST 10 PERCENT AND NOT GREATER THAN 20 PERCENT, AS DETERMINED BY AASHTO-T-144.

C. COMPOST. COMPOST SHALL MEET THE DEFINITION FOR COMPOSTED MATERIALS AS DEFINED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY.

D. SOIL AMENDMENTS (BUFFER AREAS ONLY).

D.A. FERTILIZER. WOODY PLANTINGS SHALL BE FERTILIZED WITH A SLOW-RELEASE GENERAL GRANULAR FERTILIZER (16-16-16), WITH APPLICATION RATES AS SPECIFIED BY MANUFACTURER. FERTILIZER SHALL BE APPLIED AFTER PLANTING PIT IS BACKFILLED, AND PRIOR TO APPLICATION OF MULCH. FERTILIZER SHALL NOT BE APPLIED BETWEEN NOVEMBER AND MARCH. NO FERTILIZER SHALL BE APPLIED WITHIN WETLAND AREAS.

D.B. SOIL MOISTURE RETENTION AGENT. A SOIL MOISTURE RETENTION AGENT, SUCH AS "SOILMOIST" OR EQUIV., SHALL BE INCORPORATED INTO THE BACKFILL OF EACH PLANTING PIT, PER MANUFACTURER'S INSTRUCTIONS. NO MOISTURE RETENTION AGENT SHALL BE APPLIED WITHIN WETLAND AREAS.

2.3 MULCH

A. BARK OR WOODCHIP MULCH SHALL BE DERIVED FROM DOUGLAS FIR, PINE, OR HEMLOCK SPECIES. THE MULCH SHALL NOT CONTAIN RESIN, TANNIN, OR OTHER COMPOUNDS IN QUANTITIES THAT WOULD BE DETRIMENTAL TO ANIMAL, PLANT LIFE, OR WATER QUALITY. SANDUST SHALL NOT BE USED AS MULCH.

B. MULCH SHALL BE MEDIUM-COARSE GROUND OR CHIPPED WITH AN APPROXIMATELY 3-INCH MINUS PARTICLE SIZE. FINE PARTICLES SHALL BE MINIMIZED SO THAT NOT MORE THAN 30%, BY LOOSE VOLUME, WILL PASS THROUGH A US NO. 4 SIEVE. ARBORIST CHIPPED ARE PREFERRED.

2.4 MISCELLANEOUS MATERIALS

A. STAKES, DEADENED AND GUY STAKES. SOUND, DURABLE, WESTERN RED CEDAR, OR OTHER APPROVED WOOD, FREE OF INSECT OR FUNGUS INFESTATION.

B. CHAIN-LOCK TREE TIES. ½-INCH WIDE, PLASTIC.

PART 3: EXECUTION

3.1 SOIL PREPARATION

A. PLANTING AREA CONDITIONS. CONTRACTOR SHALL VERIFY THAT PLANT INSTALLATION CONDITIONS ARE SUITABLE WITHIN THE PROJECT AREA(S). ANY UNSATISFACTORY CONDITIONS SHALL BE CORRECTED PRIOR TO START OF WORK. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED, SUCH AS RUBBLE FILL, POOR DRAINAGE, COMPACTED SOILS, SIGNIFICANT EXISTING OR INVASIVE VEGETATION, OR OTHER OBSTRUCTIONS, CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO PLANTING. THE BEGINNING OF WORK BY THE CONTRACTOR CONSTITUTES ACCEPTANCE OF CONDITIONS AS SATISFACTORY.

B. PLANTING IN UNDISTURBED, NON-GRADED AREAS. PLANTS INSTALLED IN UNDISTURBED AREAS SHALL BE INTEGRATED WITH EXISTING NATIVE VEGETATION AND PLANTED IN A RANDOM, NATURALISTIC PATTERN, PRIOR TO INSTALLATION OF PLANTINGS, ALL CONSTRUCTION DEBRIS, TRASH, AND NON-NATIVE INVASIVE PLANT MATERIAL SHALL BE REMOVED FROM THE PROJECT AREA. IN NON-GRADED AREAS, TREES AND SHRUBS SHALL BE PIT PLANTED AS SHOWN IN TYPICAL PLANTING DETAILS. PLANTING PITS SHALL BE BACKFILLED WITH A 50/50 MIXTURE OF IMPORTED, WEED-FREE TOPSOIL AND THE SOIL FROM THE PLANTING PIT.

C. PLANTING IN GRADED AREAS AND/OR AREAS DISTURBED BY CONSTRUCTION ACTIVITIES/MACHINERY. IN GRADED PLANTING AREAS, TO BE RESTORED WITH TOPSOILS, PLANTS SHALL BE INSTALLED IN NEWLY PLACED TOPSOIL.

D. SOIL DECOMPACTION/SCARIFICATION. SOILS IN GRADED/DISTURBED AREAS THAT ARE COMPACTED AND UNSUITABLE FOR PROPER PLANT GROWTH SHALL BE DECOMPACTED AND/OR SCARIFIED TO A MINIMUM DEPTH OF 6-INCHES PRIOR TO TOPSOIL INSTALLATION.

3.2 PLANTING

A. PLANT LAYOUT. PROPOSED LOCATIONS OF TREES AND SHRUBS SHALL BE STAKED AND IDENTIFIED WITH AN APPROVED CODING SYSTEM OR BY PLACEMENT OF THE ACTUAL PLANT MATERIAL. FOR LARGE GROUPINGS OF A SINGLE SPECIES OF SHRUB, LANDSCAPE CONTRACTOR MAY STAKE THE PLANTING BOUNDARIES.

B. OBTAIN LAYOUT APPROVAL FROM THE PROJECT BIOLOGIST OR ECOLOGIST PRIOR TO EXCAVATION OF PLANTING PITS.

C. PLANTING PIT DIMENSIONS.

1. PIT DEPTH: NOT TO EXCEED THE ROOT BALL OR CONTAINER DEPTH.
2. PIT WIDTH: MEASURED AT THE GROUND SURFACE, 2 TIMES THE WIDTH OF THE ROOT BALL OR CONTAINER, AS INDICATED IN TYPICAL PLANTING DETAILS.
  - a. BARE-ROOT PLANTS: DIAMETER EQUAL TO THE WIDTH OF THE ROOT SPREAD.

D. SETTING PLANTS.

1. BALLED PLANTS: SET PLANTS IN POSITION AND BACKFILL 1/2 DEPTH OF BALL. COMPLETELY REMOVE CAGE AND TWINE FROM PLANT AND FULL BURLAP DOWN AS FAR AS POSSIBLE. COMPLETE BACKFILL AND SETTLE WITH WATER. ROOT COLLAR SHALL REMAIN 1 INCH ABOVE ADJACENT GRADE.
2. BARE-ROOT PLANTS: PRUNE BRUISED OR BROKEN ROOTS. SET PLANT IN POSITION AND PLACE WETLAND PLANTING SOIL AROUND ROOTS. USE CARE TO AVOID BRUISING OR BREAKING ROOTS WHEN FIRMSING SOIL. SETTLE WITH WATER.
3. SHRUB/TREE PLANTING. SHRUB AND TREE STOCK SHALL BE PLANTED IN HAND-DUG HOLES ACCORDING TO PLANTING DETAILS SHOWN ON THE MITIGATION PLANS. SHRUB AND TREE ROOT BALLS SHALL BE SET SO THAT ROOT COLLARS ARE 1 INCH ABOVE ADJACENT GRADE. ALL BACKFILL SHALL BE GENTLY TAMPED IN PLACE.
4. SURFACE FINISH. FORM A SAUCER AS INDICATED ON TYPICAL PLANTING DETAILS, OR AS DIRECTED. GRADE SOIL TO FORM A BASIN ON THE LOWER SIDE OF SLOPE PLANTINGS TO CATCH AND RETAIN WATER.
5. IN FORESTED AREAS, CONTRACTOR SHALL LOOSELY TIE A 2 FOOT PIECE OF BIODEGRADABLE FLAGGING TO THE TOP PORTION OF ALL PLANTED VEGETATION, BUT NOT ON A CENTRAL LEADER, TO FACILITATE POST-CONSTRUCTION PERFORMANCE AND MAINTENANCE REVIEW BY THE PROJECT BIOLOGIST OR ECOLOGIST AND REGULATORY AGENCIES.
6. ACTUAL PLANT SYMBOL QUANTITIES SHOWN ON THE PLANS SHALL PREVAIL OVER QUANTITIES SHOWN ON THE PLANT SCHEDULE IN THE EVENT OF A DISCREPANCY.

E. MULCHING.

1. GRADED BUFFER AREAS: ARE MULCHED PRIOR TO PLANT INSTALLATION AS DIRECTED IN THE GRADING SPECIFICATIONS.
2. NON-GRADED BUFFER AREAS. PROVIDE A 36-INCH DIAMETER, 3-INCH DEEP MULCH RING AROUND THE BASE OF EACH TREE, AND A 24-INCH DIAMETER, 3-INCH DEEP MULCH RING AROUND THE BASE OF EACH SHRUB.
3. WATER PLANTS THOROUGHLY AFTER MULCHING.

F. PRUNING. PRUNE IMMEDIATELY AFTER PLANTING ONLY AS DIRECTED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

G. TREE STAKES AND TIES. STAKE DECIDUOUS AND EVERGREEN TREES 4 FEET OR OVER IN HEIGHT WITH ONE (1) STAKE PER TREE. STAKE TREES IMMEDIATELY AFTER PLANTING. PLACE STAKE AT THE OUTER EDGE OF THE ROOTS OR BALL, IN LINE WITH THE PREVAILING WIND, AND AT A 10 DEGREE ANGLE FROM THE TREE TRUNK. LOOSELY ATTACH STAKE TO TREE USING CHAIN-LOCK TIES; TREE SHOULD BE ABLE TO SWAY.

H. INSTALLING TEMPORARY IRRIGATION

1. GENERAL REQUIREMENTS. CONTRACTOR SHALL PROVIDE AN ABOVE-GROUND TEMPORARY IRRIGATION SYSTEM CAPABLE OF FULL HEAD-TO-HEAD COVERAGE OF ALL PLANTED PROJECT AREAS. THE TEMPORARY IRRIGATION SYSTEM SHALL EITHER UTILIZE CONTROLLER AND POINT OF CONNECTION (POC) FROM THE SITE IRRIGATION SYSTEM OR SHALL INCLUDE A SEPARATE POC AND CONTROLLER WITH A BACKFLOW PREVENTION DEVICE PER WATER JURISDICTION INSPECTION AND APPROVAL. THE SYSTEM SHALL BE ZONED TO PROVIDE OPTIMAL PRESSURE AND UNIFORMITY OF COVERAGE, AS WELL AS SEPARATION BETWEEN AREAS OF FULL SUN AND SHADE AND FOR SLOPES IN EXCESS OF 5 PERCENT. THE SYSTEM SHALL BE OPERATIONAL FOR A MINIMUM OF THE FIRST TWO GROWING SEASONS AFTER PLANTING (THE FIRST TWO YEARS OF THE PERFORMANCE MONITORING PERIOD), OR LONGER IF REQUIRED TO ENSURE PROPER PLANT ESTABLISHMENT. THE SYSTEM SHALL BE REMOVED UPON FINAL APPROVAL OF THE MITIGATION PROJECT AT THE END OF THE PERFORMANCE MONITORING PERIOD.
2. SYSTEM DESIGN AND MATERIALS. ELECTRONIC VALVES SHALL BE THE SAME MANUFACTURER AS THOSE USED FOR THE SITE IRRIGATION SYSTEM, OR SHALL BE RAIN BIRD PER SERIES OR EQUAL IF SYSTEM IS NOT CONTIGUOUS WITH THE SITE SYSTEM. VALVES SHALL BE SIZED TO ACCOMMODATE PRESSURE AND ZONE CONSUMPTION REQUIREMENTS OF THE SYSTEM AND SHALL BE INSTALLED BELOW GRADE IN CARSON (OR EQUAL) VALVE BOXES. WIRING SHALL BE INSULATED MULTI-STRAND, TAPED TO THE MAIN AT 6-INCH INTERVALS WITH DUCT TAPE WRAPS. ON-GRADE MAIN AND LATERAL LINES SHALL BE GLASS 200 PVC BELL PIPE WITH SOLVENT WELDED FITTINGS, SECURED IN-PLACE WITH WIRE STAPLES WHERE NECESSARY ON SLOPED AREAS. LINES SHALL BE PLACED 12 INCHES BELOW GRADE IN 4 INCH PVC SLEEVES WHERE VEHICULAR OR MAINTENANCE ACCESS IS NEEDED ACROSS LINES TO THE PROJECT AREA(S). MAXIMUM MAIN LINE SIZE SHALL BE 1½ INCHES AND MAY BE LOOPED BACK TO THE POC TO REDUCE PRESSURE LOSS. LATERAL LINES SHALL BE SIZED IN DECREASING DOWNSTREAM ORDER PER RAIN BIRD DESIGN STANDARDS; THE MINIMUM LATERAL SIZE SHALL BE ½ INCH. HEADS SHALL BE ROTOR OR IMPACT TYPE INSTALLED 4 FEET ABOVE FINISHED GRADE ON 2-INCH DIAMETER WOOD TREE STAKES. STAKES SHALL BE SECURE IN THE GROUND, EMBEDDED TO A MINIMUM DEPTH OF 24 INCHES. HEADS AND ½ INCH PVC RISERS SHALL BE SECURED TO STAKES WITH CONSTRUCTING HOSE CLAMPS; NO FUNNY PIPE SHALL BE USED. HEADS AND NOZZLES SHALL PROVIDE MATCHED PRECIPITATION RATES FOR EACH ZONE.

3. PROGRAMMING. IRRIGATION SYSTEM SHALL BE PROGRAMMED TO PROVIDE APPROXIMATELY 1/2 INCH OF WATER EVERY THREE DAYS DURING THE DRY SEASON (APPROXIMATELY JUNE 15TH TO OCTOBER 15TH). IRRIGATION AMOUNTS IN ZONES LOCATED IN THE SHADE OR ON STEEP SLOPES MAY BE REDUCED IF APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST OR THE PROJECT ECOLOGIST/BIOLOGIST.

4. WATER AND POWER SUPPLY FOR SYSTEM. THE OWNER SHALL PROVIDE WATER AND ELECTRICITY FOR THE SYSTEM.

5. AS-BUILT DRAWING. A CHART DESCRIBING THE LOCATION OF ALL INSTALLED OR OPEN ZONES AND CORRESPONDING CONTROLLER NUMBERS SHALL BE PROVIDED BY THE CONTRACTOR AND PLACED INSIDE THE CONTROLLER AND GIVEN TO THE OWNER'S REPRESENTATIVE.

6. WARRANTY. THE IRRIGATION SYSTEM SHALL INCLUDE A ONE-YEAR WARRANTY AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FROM THE DATE OF FINAL PROJECT ACCEPTANCE. THE WARRANTY SHALL INCLUDE SYSTEM ACTIVATION AND WINTERIZATION FOR THE FIRST YEAR AND IMMEDIATE REPAIR OF THE SYSTEM IF IT IS OBSERVED TO BE MALFUNCTIONING.

J. CRITICAL AREAS FENCE AND SIGNS. INSTALL CRITICAL AREAS FENCE AND CRITICAL AREAS SIGNS WHERE SHOWN ON PLANS.

K. RESTORE EXISTING NATURAL OR LANDSCAPED AREAS.

1. EXISTING NATURAL OR LANDSCAPED AREAS THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS IMPROVEMENTS OR MODIFICATIONS ARE SPECIFIED FOR THOSE AREAS.

2. CONTRACTOR SHALL EXERCISE CARE TO PREVENT INJURY TO THE TRUNK, ROOTS, OR BRANCHES OF ANY TREES OR SHRUBS THAT ARE TO REMAIN ANY LIVING, WOODY PLANT THAT IS DAMAGED DURING CONSTRUCTION SHALL BE TREATED WITHIN 24 HOURS OF OCCURRENCE, AND THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE NOTIFIED IMMEDIATELY OF THE INCIDENT. DAMAGE TREATMENT SHALL INCLUDE EVENLY CUTTING BROKEN BRANCHES, BROKEN ROOTS, AND DAMAGED TREE BARK. INJURED PLANTS SHALL BE THOROUGHLY WATERED AND ADDITIONAL MEASURES SHALL BE TAKEN, AS APPROPRIATE, TO AID IN PLANT SURVIVAL.

L. FINAL INSPECTION AND APPROVAL. THE CONTRACTOR SHALL NOTIFY THE PROJECT BIOLOGIST OR ECOLOGIST IN WRITING AT LEAST TEN DAYS PRIOR TO THE REQUESTED DATE OF A PROJECT COMPLETION INSPECTION. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED BY THE PROJECT BIOLOGIST OR ECOLOGIST AND SUBMITTED TO THE CONTRACTOR FOR COMPLETION. AFTER PUNCH LIST ITEMS HAVE BEEN COMPLETED, THE PROJECT BIOLOGIST OR ECOLOGIST SHALL REVIEW THE PROJECT AGAIN FOR FINAL ACCEPTANCE OF PLAN IMPLEMENTATION. IF PUNCH LIST ITEMS REQUIRE PLANT REPLACEMENT, AND THE INSPECTION OCCURS OUTSIDE OF A SUITABLE PLANTING SEASON, PLANTS SHALL BE REPLACED DURING THE NEXT PLANTING SEASON.

M. AS-BUILT PLAN. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT LOCATIONS AND QUANTITIES ON THE PLANT SCHEDULE WITH THOSE REPRESENTED AS SYMBOLS ON THE MITIGATION PLANS. CONTRACTOR SHALL KEEP A COMPLETE SET OF PRINTS AT THE JOB SITE DURING CONSTRUCTION FOR THE PURPOSE OF RECORDING IN-THE-FIELD CHANGES OR MODIFICATIONS TO THE APPROVED PLANS. THIS INFORMATION SHALL BE UPDATED ON A DAILY BASIS AS NECESSARY.

PART 4: ONE YEAR CONTRACTOR WARRANTY

NOTE: THESE MAINTENANCE SPECIFICATIONS APPLY TO THE ONE-YEAR CONTRACTOR WARRANTY PERIOD ONLY. IF THIS MITIGATION PROJECT REQUIRES LONG-TERM PERFORMANCE MONITORING, AS DETERMINED BY THE GOVERNING JURISDICTION, THE MAINTENANCE SPECIFICATIONS AND GUIDELINES ASSOCIATED WITH THE PERFORMANCE MONITORING STANDARDS ARE INCLUDED IN THE MITIGATION REPORT ASSOCIATED WITH THIS PLAN SET, AND MAY ALSO BE INCLUDED ON A SEPARATE PLAN SHEET IF REQUIRED.

A. REVIEW OF MAINTENANCE REQUIREMENTS. CONTRACTOR SHALL REVIEW LANDSCAPE MAINTENANCE RECOMMENDATIONS WITH A QUALIFIED WETLAND BIOLOGIST FROM THE PROJECT BIOLOGIST OR ECOLOGIST WHO IS FAMILIAR WITH THE STATED GOALS AND OBJECTIVES OF THE PROJECT PLAN.

B. MAINTENANCE ACTIVITIES. CONTRACTOR SHALL MAINTAIN TREES AND SHRUBS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE IN ORDER TO MAINTAIN HEALTHY GROWTH AND HABITAT DIVERSITY. MAINTENANCE ACTIVITIES SHALL INCLUDE, BUT ARE NOT LIMITED TO: (A) REPLACING PLANTS DUE TO MORTALITY, (B) TIGHTENING AND REPAIRING TREE STAKES, (C) RESETTling PLANTS TO PROPER GRADES AND UPRIGHT POSITIONS, AND (D) CORRECTING DRAINAGE PROBLEMS AS REQUIRED.

C. IRRIGATION.

1. SYSTEM MAINTENANCE AND REPAIR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACTIVATING, WINTERIZING, MAINTAINING, AND CONTINUALLY VERIFYING THE ADEQUATE OPERATION OF THE TEMPORARY IRRIGATION SYSTEM FOR THE FIRST GROWING SEASON FOLLOWING INSTALLATION. SYSTEM FUNCTION (INCLUDING ELECTRONIC VALVE AND CONTROLLER FUNCTION) SHALL BE INSPECTED FOR OPERATION AND FULL COVERAGE OF ALL PLANTED AREAS DURING EACH MAINTENANCE VISIT. THE SYSTEM SHALL BE REPAIRED IMMEDIATELY IF FOUND TO BE DAMAGED OR MALFUNCTIONING. SYSTEM SHALL BE PROGRAMMED AND MAINTAINED TO PROVIDE APPROXIMATELY ½ INCH OF WATER EVERY THREE DAYS.

D. STAKE AND TIE REMOVAL. CONTRACTOR SHALL REMOVE TREE STAKES AND TIES ONE YEAR AFTER INSTALLATION, UNLESS RECEIVING WRITTEN PERMISSION FROM THE PROJECT BIOLOGIST OR ECOLOGIST TO DELAY REMOVAL OF STAKES AND TIES

E. EROSION AND DRAINAGE. CONTRACTOR SHALL CORRECT EROSION AND DRAINAGE PROBLEMS AS REQUIRED.

F. IRRIGATION SYSTEM REMOVAL. CONTRACTOR SHALL REMOVE IRRIGATION SYSTEM APPROXIMATELY 2 YEARS AFTER PLANTING, OR AS APPROVED BY THE PROJECT BIOLOGIST OR ECOLOGIST.

G. FINAL MAINTENANCE INSPECTION AND APPROVAL. UPON COMPLETION OF THE ONE-YEAR MAINTENANCE PERIOD, AN INSPECTION BY THE PROJECT BIOLOGIST OR ECOLOGIST SHALL BE CONDUCTED TO CONFIRM THAT THE PROJECT AREA WAS PROPERLY MAINTAINED. IF ITEMS ARE TO BE CORRECTED, A PUNCH LIST SHALL BE PREPARED AND SUBMITTED TO THE CONTRACTOR FOR CORRECTION. UPON CORRECTION OF THE PUNCH LIST ITEMS, THE PROJECT SHALL BE REVIEWED BY THE PROJECT BIOLOGIST OR ECOLOGIST FOR FINAL CLOSEOUT OF PLAN IMPLEMENTATION.

H. ADD THE FOLLOWING NOTE IF NO IRRIGATION WILL BE INSTALLED: WATERING. THE CONTRACTOR SHALL PROVIDE MANUAL WATERING OF THE MITIGATION PLANTINGS BETWEEN JUNE 15TH AND OCTOBER 15TH. SUPPLEMENTAL WATERING MAY ALSO BE REQUIRED IF HOT, DRY WEATHER OCCURS EITHER BEFORE OR AFTER THESE DATES. DURING THE FIRST YEAR AFTER INSTALLATION, PLANTINGS SHALL BE WATERED A MINIMUM OF ONE INCH PER WEEK. WATERING FREQUENCY MAY BE INCREASED AS NECESSARY DURING PROLONGED PERIODS OF HOT, DRY WEATHER TO PREVENT PLANT MORTALITY.

NOT FOR CONSTRUCTION

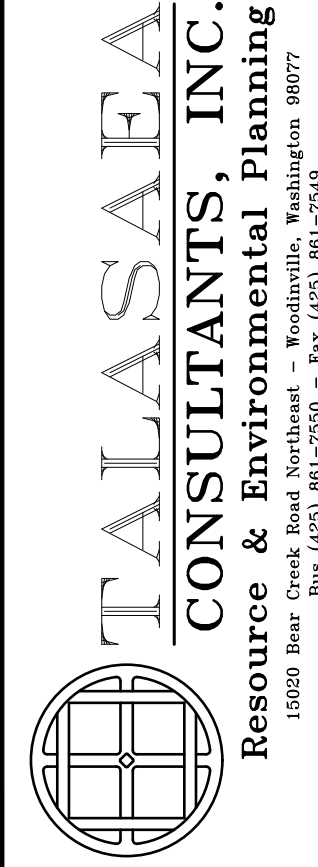
THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:  
**SUBJECT TO REVISION**



NOTES

1. SURVEY PROVIDED BY CORE DESIGN, 12100 I 145TH ST, SUITE 300, BOTHELL, WA 48011, (425) 885-1877.
2. SITE PLAN PROVIDED BY CORE DESIGN, 12100 NE 145TH ST, SUITE 300, (425) 885-1877.
3. SOURCE DRAWING WAS MODIFIED BY TALASAEA CONSULTANTS FOR VISUAL ENHANCEMENT.
4. THIS PLAN IS AN ATTACHMENT TO THE CRITICAL AREAS REPORT PREPARED BY TALASAEA CONSULTANTS IN SEPT, 2021.

CRITICAL AREAS MITIGATION PLAN  
PLANTING SPECIFICATIONS  
MILANO ISSAGUAH APARTMENTS PROJECT  
ISSAGUAH, WASHINGTON



**APPENDIX B**  
*Wetland Determination Datasheets, Talasaea Consultants Inc, 2020*

Project/Site:	TAL-1816 Milano Issaquah Apartments	City/County:	Issaquah, King County	Sampling Date:	07/27/2020
Applicant/Owner:	Hossein Khorram	State:	WA	Sampling Point:	TP-1
Investigator(s):	Kellen Maloney, Talasaea Consultants	Section, Township, Range:	SW1/4 S20, T24N, R6E		
Landform (hillslope, terrace, etc):	Riparian Corridor	Local relief (concave, convex, none):	none	Slope (%):	0
Subregion (LRR):	A	Lat:	47.551	Long:	-122.074
		Datum:	NAD83		
Soil Map Unit Name:	Kitsap Silt Loam, 2-8% Slopes	NWI classification:	PSSC		
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in Remarks.)					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed? Are "Normal Circumstances" present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic? (If needed, explain any answers in Remarks.)					

Hydrophytic Vegetation Present?	Yes <u>  X  </u>	No <u>      </u>	<b>Is the Sampled Area within a Wetland?</b>	Yes <u>      </u> No <u>  X  </u>
Hydric Soil Present?	Yes <u>      </u>	No <u>  X  </u>		
Wetland Hydrology Present?	Yes <u>      </u>	No <u>  X  </u>		
Remarks:				

Tree Stratum (Plot size: _____ 30 _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Alnus rubra</i> / Red alder	60	Yes	FAC	
2. <i>Salix scouleriana</i> / Scouler willow, Scouler's willow	35	Yes	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	95	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____ 15 _____)				
1. <i>Cornus alba</i> / Red osier	40	Yes	FACW	
2. <i>Symphoricarpos albus</i> / Common snowberry	20	Yes	FACU	
3. <i>Rubus parviflorus</i> / Thimbleberry	15	Yes	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	75	= Total Cover		
Herb Stratum (Plot size: _____ 5 _____)				
1. <i>Ranunculus repens</i> / Crowfoot, Creeping buttercup	5	Yes	FAC	
2. <i>Equisetum arvense</i> / Common horsetail	5	Yes	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	10	= Total Cover		
Woody Vine Stratum (Plot size: _____ 5 _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	0	= Total Cover		
% Bare Ground in Herb Stratum _____				

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	_____ 5 _____ (A)
Total Number of Dominant Species Across All Strata:	_____ 7 _____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	_____ 71.4 _____ (A/B)

Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species _____ 0 _____	x 1 = _____ 0 _____
FACW species _____ 40 _____	x 2 = _____ 80 _____
FAC species _____ 105 _____	x 3 = _____ 315 _____
FACU species _____ 35 _____	x 4 = _____ 140 _____
UPL species _____ 0 _____	x 5 = _____ 0 _____
Column Totals: _____ 180 _____ (A)	_____ 535 _____ (B)
Prevalence Index = B/A = _____ 2.97 _____	

Hydrophytic Vegetation Indicators:	
_____ 1 - Rapid Test for Hydrophytic Vegetation	
<u>X</u> 2 - Dominance Test is >50%	
<u>X</u> 3 - Prevalence Index ≤3.0 <sup>1</sup>	
_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting	
_____ 5 - Wetland Non-Vascular Plants <sup>1</sup>	
_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain )	
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	

Hydrophytic Vegetation Present?	
Yes _____ X _____	No _____

Remarks:

## SOIL

Sampling Point: TP-1

## Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 2/2	100					Sandy Loam	
7-16	10YR 3/2	100					Sandy Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if present):

Type: Compact Gravel

Depth (inches): 16

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
<input type="checkbox"/> Frost-Heave Hummocks (D7)

## Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project/Site:	TAL-1816 Milano Issaquah Apartments	City/County:	Issaquah, King County	Sampling Date:	07/27/2020
Applicant/Owner:	Hossein Khorram	State:	WA	Sampling Point:	TP-2
Investigator(s):	Kellen Maloney, Talasaea Consultants	Section, Township, Range:	SW1/4 S20, T24N, R6E		
Landform (hillslope, terrace, etc):	Riparian Corridor	Local relief (concave, convex, none):	none	Slope (%):	2
Subregion (LRR):	A	Lat:	47.551	Long:	-122.074
		Datum:	NAD83		
Soil Map Unit Name:	Kitsap Silt Loam, 2-8% Slopes	NWI classification:	PSSC		
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in Remarks.)					
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?			Are "Normal Circumstances" present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Are Vegetation <input type="checkbox"/> , Soil <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?			(If needed, explain any answers in Remarks.)		

Hydrophytic Vegetation Present?	Yes	<u>  X  </u>	No	<u>      </u>	<b>Is the Sampled Area within a Wetland?</b>	Yes	<u>  X  </u>	No	<u>      </u>
Hydric Soil Present?	Yes	<u>  X  </u>	No	<u>      </u>					
Wetland Hydrology Present?	Yes	<u>  X  </u>	No	<u>      </u>					
Remarks:            Test plot located within Wetland B, Approx. 20 feet west of TP-1.									

Tree Stratum (Plot size: _____ 30 _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <i>Fraxinus latifolia</i> / Oregon ash	40	Yes	FACW	
2. <i>Populus balsamifera ssp. trichocarpa</i> / Black cottonwood	30	Yes	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
	70	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____ 15 _____)				
1. <i>Cornus alba</i> / Red osier	30	Yes	FACW	
2. <i>Physocarpus capitatus</i> / Ninebark	20	Yes	FACW	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	50	= Total Cover		
Herb Stratum (Plot size: _____ 5 _____)				
1. <i>Equisetum arvense</i> / Common horsetail	15	Yes	FAC	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
	15	= Total Cover		
Woody Vine Stratum (Plot size: _____ 5 _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	0	= Total Cover		
% Bare Ground in Herb Stratum _____				

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	_____ 5 _____ (A)
Total Number of Dominant Species Across All Strata:	_____ 5 _____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	_____ 100.0 _____ (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species _____ 0 _____	x 1 = _____ 0 _____
FACW species _____ 90 _____	x 2 = _____ 180 _____
FAC species _____ 45 _____	x 3 = _____ 135 _____
FACU species _____ 0 _____	x 4 = _____ 0 _____
UPL species _____ 0 _____	x 5 = _____ 0 _____
Column Totals: _____ 135 _____	(A) _____ 315 _____ (B)
Prevalence Index = B/A = _____ 2.33 _____	
Hydrophytic Vegetation Indicators:	
_____ 1 - Rapid Test for Hydrophytic Vegetation	
<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
<input checked="" type="checkbox"/> 3 - Prevalence Index ≤3.0 <sup>1</sup>	
_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting	
_____ 5 - Wetland Non-Vascular Plants <sup>1</sup>	
_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain )	
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Hydrophytic Vegetation Present?	
Yes	_____ X _____ No _____

Remarks:

## SOIL

Sampling Point: TP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 2/2	100					Silt Loam	
6-20	10YR 3/1	95	10YR 3/4	5	C	PL,M	Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☒ No ☐

Remarks:

## HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>
<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, & Coast

Project/Site: TAL-1816 Milano Issaquah Apartments City/County: Issaquah, King County Sampling Date: 07/27/2020  
 Applicant/Owner: Hossein Khorram State: WA Sampling Point: TP-3  
 Investigator(s): Kellen Maloney, Talasaea Consultants Section, Township, Range: SW1/4 S20, T24N, R6E  
 Landform (hillslope, terrace, etc): Riparian Corridor Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): A Lat: 47.551 Long: -122.074 Datum: NAD83  
 Soil Map Unit Name: Kitsap Silt Loam, 2-8% Slopes NWI classification: PSSC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No        (If no, explain in Remarks.)  
 Are Vegetation       , Soil       , or Hydrology        significantly disturbed? Are "Normal Circumstances" present? Yes X No         
 Are Vegetation       , Soil       , or Hydrology        naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>      </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u>      </u> No <u>X</u>
Hydric Soil Present?	Yes <u>      </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u>      </u> No <u>X</u>	
Remarks:		

## VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>8</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>37.5</u> (A/B)														
1. <u>Salix lasiandra</u> / Pacific willow	30	Yes	FACW		<b>Prevalence Index worksheet:</b> <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>30</u></td> <td>x 2 = <u>60</u></td> </tr> <tr> <td>FAC species <u>30</u></td> <td>x 3 = <u>90</u></td> </tr> <tr> <td>FACU species <u>115</u></td> <td>x 4 = <u>460</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>175</u> (A)</td> <td><u>610</u> (B)</td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>30</u>	x 2 = <u>60</u>	FAC species <u>30</u>	x 3 = <u>90</u>	FACU species <u>115</u>	x 4 = <u>460</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>175</u> (A)
Total % Cover of:	Multiply by:																	
OBL species <u>0</u>	x 1 = <u>0</u>																	
FACW species <u>30</u>	x 2 = <u>60</u>																	
FAC species <u>30</u>	x 3 = <u>90</u>																	
FACU species <u>115</u>	x 4 = <u>460</u>																	
UPL species <u>0</u>	x 5 = <u>0</u>																	
Column Totals: <u>175</u> (A)	<u>610</u> (B)																	
2. <u>Thuja plicata</u> / Western red cedar, Western red cedar, Canoe	15	Yes	FAC															
3. <u>Alnus rubra</u> / Red alder	15	Yes	FAC	Prevalence Index = B/A = <u>3.49</u>														
4. <u>      </u>	<u>60</u>	= Total Cover																
Sapling/Shrub Stratum (Plot size: <u>15</u> )				<b>Hydrophytic Vegetation Indicators:</b> <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index ≤3.0 <sup>1</sup> <u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting <u>5</u> - Wetland Non-Vascular Plants <sup>1</sup> <u>      </u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain )														
1. <u>Sambucus racemosa</u> / Red elderberry	30	Yes	FACU															
2. <u>Symphoricarpos albus</u> / Common snowberry	15	Yes	FACU	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.														
3. <u>Ilex aquifolium</u> / Holly, English holly	15	Yes	FACU															
4. <u>      </u>	<u>60</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>      </u> No <u>X</u>														
5. <u>      </u>	<u>60</u>	= Total Cover																
Herb Stratum (Plot size: <u>5</u> )																		
1. <u>Geranium robertianum</u> / Robert's geranium	30	Yes	FACU															
2. <u>Hedera helix</u> / English ivy	25	Yes	FACU															
3. <u>      </u>	<u>55</u>	= Total Cover																
4. <u>      </u>	<u>55</u>	= Total Cover																
5. <u>      </u>	<u>55</u>	= Total Cover																
6. <u>      </u>	<u>55</u>	= Total Cover																
7. <u>      </u>	<u>55</u>	= Total Cover																
8. <u>      </u>	<u>55</u>	= Total Cover																
9. <u>      </u>	<u>55</u>	= Total Cover																
10. <u>      </u>	<u>55</u>	= Total Cover																
11. <u>      </u>	<u>55</u>	= Total Cover																
Woody Vine Stratum (Plot size: <u>5</u> )																		
1. <u>      </u>	<u>0</u>	= Total Cover																
2. <u>      </u>	<u>0</u>	= Total Cover																
% Bare Ground in Herb Stratum <u>      </u>	<u>0</u>	= Total Cover																

Remarks:
----------

## SOIL

Sampling Point: TP-3

## Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 2/2	100					Loam	
9-20	10YR 3/1	95	10YR 3/4	5	C	M	Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

## Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)

Indicators for Problematic Hydric Soils<sup>3</sup>:

<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

## Remarks:

Redox located at a depth that does not qualify for F6.

## HYDROLOGY

## Wetland Hydrology Indicators:

## Primary Indicators (minimum of one required; check all that apply)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

## Secondary Indicators (minimum of two required)

<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>
<input type="checkbox"/> Frost-Heave Hummocks (D7)

## Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

## Remarks:

## **APPENDIX C**

### *Wetland Rating Forms & Figures, Talasaea Consultants Inc, 2022*

Wetland name or number B

## RATING SUMMARY – Western Washington

Name of wetland (or ID #): TAL-1816 Wetland B Date of site visit: 12/7/21

Rated by J. Prater, Talasaea Consultants Trained by Ecology? X Yes \_\_\_ No Date of training Nov. 2021

HGM Class used for rating Slope Wetland has multiple HGM classes? \_\_\_Y X N

**NOTE: Form is not complete without the figures requested (figures can be combined).**

Source of base aerial photo/map \_\_\_\_\_

**OVERALL WETLAND CATEGORY** III (based on functions\_\_\_ or special characteristics\_\_\_)

### 1. Category of wetland based on FUNCTIONS

\_\_\_\_\_ **Category I** – Total score = 23 - 27

\_\_\_\_\_ **Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

\_\_\_\_\_ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	H <u>M</u> L	H M <u>L</u>	H <u>M</u> L	
Landscape Potential	H <u>M</u> L	H <u>M</u> L	H M <u>L</u>	
Value	<u>H</u> M L	H M <u>L</u>	<u>H</u> M L	<b>TOTAL</b>
Score Based on Ratings	7	4	6	17

**Score for each  
function based  
on three  
ratings  
(order of ratings  
is not  
important)**

9 = H,H,H

8 = H,H,M

7 = H,H,L

7 = H,M,M

6 = H,M,L

6 = M,M,M

5 = H,L,L

5 = M,M,L

4 = M,L,L

3 = L,L,L

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number   B  

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

### Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream ( <i>can be added to another figure</i> )	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

### Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

### Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	2
Plant cover of <b>dense</b> trees, shrubs, and herbaceous plants	S 1.3	3
Plant cover of <b>dense, rigid</b> trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	NA
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	7

## HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

**NO – go to 2**

**YES – the wetland class is Tidal Fringe – go to 1.1**

- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

**NO – Saltwater Tidal Fringe (Estuarine)**

**YES – Freshwater Tidal Fringe**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

**NO – go to 3**

**YES – The wetland class is Flats**

*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?

☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;

☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

**NO – go to 4**

**YES – The wetland class is Lake Fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☒ The wetland is on a slope (*slope can be very gradual*),

☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,

☒ The water leaves the wetland **without being impounded**.

**NO – go to 5**

**YES – The wetland class is Slope**

**NOTE:** Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,

☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number   B  

**NO – go to 6**

**YES – The wetland class is Riverine**

**NOTE:** The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

**NO – go to 7**

**YES – The wetland class is Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

**NO – go to 8**

**YES – The wetland class is Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

**NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number  B

### SLOPE WETLANDS

#### Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?		
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> Slope is 1% or less <span style="float: right;">points = 3</span> Slope is > 1%-2% <span style="float: right;">points = 2</span> Slope is > 2%-5% <span style="float: right;">points = 1</span> Slope is greater than 5% <span style="float: right;">points = 0</span>		0
S 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic <i>(use NRCS definitions)</i> : Yes = 3 No = 0		0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area <span style="float: right;">points = 6</span> Dense, uncut, herbaceous plants > ½ of area <span style="float: right;">points = 3</span> Dense, woody, plants > ½ of area <span style="float: right;">points = 2</span> Dense, uncut, herbaceous plants > ¼ of area <span style="float: right;">points = 1</span> Does not meet any of the criteria above for plants <span style="float: right;">points = 0</span>		6
Total for S 1 <span style="float: right;">Add the points in the boxes above</span>		6

**Rating of Site Potential** If score is: 12 = H X 6-11 = M 0-5 = L

*Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? <span style="float: right;">Yes = 1 No = 0</span>	1
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ <span style="float: right;">Yes = 1 No = 0</span>	0
Total for S 2 <span style="float: right;">Add the points in the boxes above</span>	1

**Rating of Landscape Potential** If score is: X 1-2 = M 0 = L

*Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? <span style="float: right;">Yes = 1 No = 0</span>	1
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? <i>At least one aquatic resource in the basin is on the 303(d) list.</i> <span style="float: right;">Yes = 1 No = 0</span>	1
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? <i>Answer YES if there is a TMDL for the basin in which unit is found.</i> <span style="float: right;">Yes = 2 No = 0</span>	2
Total for S 3 <span style="float: right;">Add the points in the boxes above</span>	4

**Rating of Value** If score is: X 2-4 = H 1 = M 0 = L

*Record the rating on the first page*

Wetland name or number B

## SLOPE WETLANDS

**Hydrologic Functions** - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1.	Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. <i>Stems of plants should be thick enough (usually &gt; <math>\frac{1}{8}</math> in), or dense enough, to remain erect during surface flows.</i>	0
	Dense, uncut, <b>rigid</b> plants cover > 90% of the area of the wetland	points = 1
	All other conditions	points = 0

**Rating of Site Potential** If score is: **1 = M** X **0 = L**

*Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	1
---	---

**Rating of Landscape Potential** If score is: X **1 = M**      **0 = L**

*Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems:		
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	0
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		0
Yes = 2 No = 0		
Total for S 6	Add the points in the boxes above	0

**Rating of Value** If score is: 2-4 = H 1 = M X 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

Wetland name or number   B  

**These questions apply to wetlands of all HGM classes.**

**HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat

**H 1.0. Does the site have the potential to provide habitat?**

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- |   |                                  |   |
|---|----------------------------------|---|
| <input type="checkbox"/> Aquatic bed  | 4 structures or more: points = 4 | 1 |
| <input type="checkbox"/> Emergent   | 3 structures: points = 2         |   |
| <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover)        | 2 structures: points = 1         |   |
| <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) | 1 structure: points = 0          |   |

*If the unit has a Forested class, check if:*

- ☒ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

**H 1.2. Hydroperiods**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- |   |                                     |   |
|---|-------------------------------------|---|
| <input type="checkbox"/> Permanently flooded or inundated   | 4 or more types present: points = 3 | 1 |
| <input type="checkbox"/> Seasonally flooded or inundated  | 3 types present: points = 2         |   |
| <input type="checkbox"/> Occasionally flooded or inundated  | 2 types present: points = 1         |   |
| <input checked="" type="checkbox"/> Saturated only  | 1 type present: points = 0          |   |
| <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland |                                     |   |
| <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland                      |                                     |   |
| <input type="checkbox"/> Lake Fringe wetland  | <b>2 points</b>                     |   |
| <input type="checkbox"/> Freshwater tidal wetland   | <b>2 points</b>                     |   |

**H 1.3. Richness of plant species**

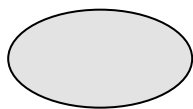
Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. **Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

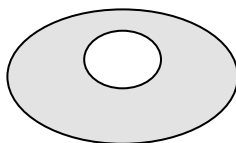
- |                              |            |   |
|------------------------------|------------|---|
| If you counted: > 19 species | points = 2 | 1 |
| 5 - 19 species               | points = 1 |   |
| < 5 species                  | points = 0 |   |

**H 1.4. Interspersion of habitats**

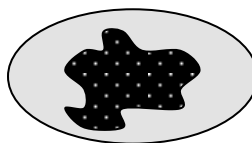
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



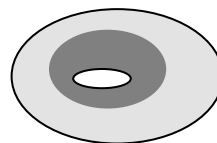
**None** = 0 points



**Low** = 1 point

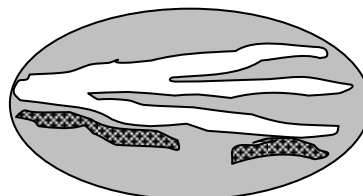
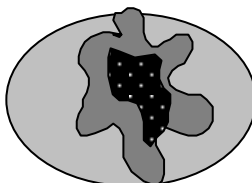
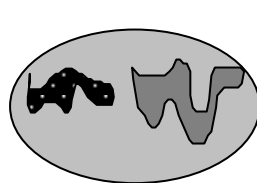


**Moderate** = 2 points



1

All three diagrams in this row are **HIGH** = 3points



Wetland name or number  B

<b>H 1.5. Special habitat features:</b> Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input checked="" type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present ( <i>cut shrubs or trees that have not yet weathered where wood is exposed</i> ) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated ( <i>structures for egg-laying by amphibians</i> ) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants ( <i>see H 1.1 for list of strata</i> )		3
Total for H 1	Add the points in the boxes above	7

**Rating of Site Potential** If score is:  15-18 = H   X 7-14 = M   0-6 = L  *Record the rating on the first page*

<b>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i>).</b> <i>Calculate:</i> % undisturbed habitat <u>.2</u> + [(% moderate and low intensity land uses)/2] <u>0</u> = <u>0.2</u> % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span> 20-33% of 1 km Polygon <span style="float: right;">points = 2</span> 10-19% of 1 km Polygon <span style="float: right;">points = 1</span> < 10% of 1 km Polygon <span style="float: right;">points = 0</span>		0
<b>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</b> <i>Calculate:</i> % undisturbed habitat <u>40</u> + [(% moderate and low intensity land uses)/2] <u>5.9</u> = <u>45.9</u> % Undisturbed habitat > 50% of Polygon <span style="float: right;">points = 3</span> Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span> Undisturbed habitat 10-50% and > 3 patches <span style="float: right;">points = 1</span> Undisturbed habitat < 10% of 1 km Polygon <span style="float: right;">points = 0</span>		1
<b>H 2.3. Land use intensity in 1 km Polygon: If</b> > 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span> ≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span>		-2
Total for H 2	Add the points in the boxes above	-1

**Rating of Landscape Potential** If score is:  4-6 = H   1-3 = M   X < 1 = L  *Record the rating on the first page*

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i></b> Site meets ANY of the following criteria: <span style="float: right;">points = 2</span> <input checked="" type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m <span style="float: right;">points = 1</span> Site does not meet any of the criteria above <span style="float: right;">points = 0</span>		2

**Rating of Value** If score is:  X 2 = H   1 = M   0 = L  *Record the rating on the first page*

## WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <http://wdfw.wa.gov/publications/00165/wdfw00165.pdf> or access the list from here: <http://wdfw.wa.gov/conservation/phs/list/>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** *This question is independent of the land use between the wetland unit and the priority habitat.*

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha ) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

**Note:** All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<b>SC 1.0. Estuarine wetlands</b> Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt <div style="text-align: right;">Yes –Go to <b>SC 1.1</b>    No= <b>Not an estuarine wetland</b></div>	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <div style="text-align: right;">Yes = <b>Category I</b>    No - Go to <b>SC 1.2</b></div>	<b>Cat. I</b>
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Category II</b></div>	<b>Cat. I</b>  <b>Cat. II</b>
<b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b> SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <div style="text-align: right;">Yes – Go to <b>SC 2.2</b>    No – Go to <b>SC 2.3</b></div> SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Not a WHCV</b></div> SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <div style="text-align: right;">Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b>    No = <b>Not a WHCV</b></div> SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? <div style="text-align: right;">Yes = <b>Category I</b>    No = <b>Not a WHCV</b></div>	<b>Cat. I</b>
<b>SC 3.0. Bogs</b> Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? <div style="text-align: right;">Yes – Go to <b>SC 3.3</b>    No – Go to <b>SC 3.2</b></div> SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? <div style="text-align: right;">Yes – Go to <b>SC 3.3</b>    No = <b>Is not a bog</b></div> SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? <div style="text-align: right;">Yes = <b>Is a Category I bog</b>    No – Go to <b>SC 3.4</b></div> <b>NOTE:</b> If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? <div style="text-align: right;">Yes = <b>Is a Category I bog</b>    No = <b>Is not a bog</b></div>	<b>Cat. I</b>

Wetland name or number   B  

<p><b>SC 4.0. Forested Wetlands</b></p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <b><i>If you answer YES you will still need to rate the wetland based on its functions.</i></b></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests</b> (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.</li> <li>— <b>Mature forests</b> (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).</li> </ul> <p style="text-align: right;">Yes = <b>Category I</b>      No = <b>Not a forested wetland for this section</b></p>	<b>Cat. I</b>
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</li> <li>— The lagoon in which the wetland is located contains ponded water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p style="text-align: right;">Yes – Go to <b>SC 5.1</b>      No = <b>Not a wetland in a coastal lagoon</b></p> <p>SC 5.1. Does the wetland meet all of the following three conditions?</p> <ul style="list-style-type: none"> <li>— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> <li>— The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</li> </ul> <p style="text-align: right;">Yes = <b>Category I</b>      No = <b>Category II</b></p>	<p style="text-align: center; vertical-align: middle;"><b>Cat. I</b></p> <p style="text-align: center; vertical-align: middle;"><b>Cat. II</b></p>
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <b><i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></b></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>— Long Beach Peninsula: Lands west of SR 103</li> <li>— Grayland-Westport: Lands west of SR 105</li> <li>— Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> </ul> <p style="text-align: right;">Yes – Go to <b>SC 6.1</b>      No = <b>not an interdunal wetland for rating</b></p> <p>SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?</p> <p style="text-align: right;">Yes = <b>Category I</b>      No – Go to <b>SC 6.2</b></p> <p>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</p> <p style="text-align: right;">Yes = <b>Category II</b>      No – Go to <b>SC 6.3</b></p> <p>SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?</p> <p style="text-align: right;">Yes = <b>Category III</b>      No = <b>Category IV</b></p>	<p style="text-align: center; vertical-align: middle;"><b>Cat I</b></p> <p style="text-align: center; vertical-align: middle;"><b>Cat. II</b></p> <p style="text-align: center; vertical-align: middle;"><b>Cat. III</b></p> <p style="text-align: center; vertical-align: middle;"><b>Cat. IV</b></p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	

Wetland name or number   B  

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SW 1/4, SEC. 20, TOWNSHIP 24N, RANGE 6E, W.M.

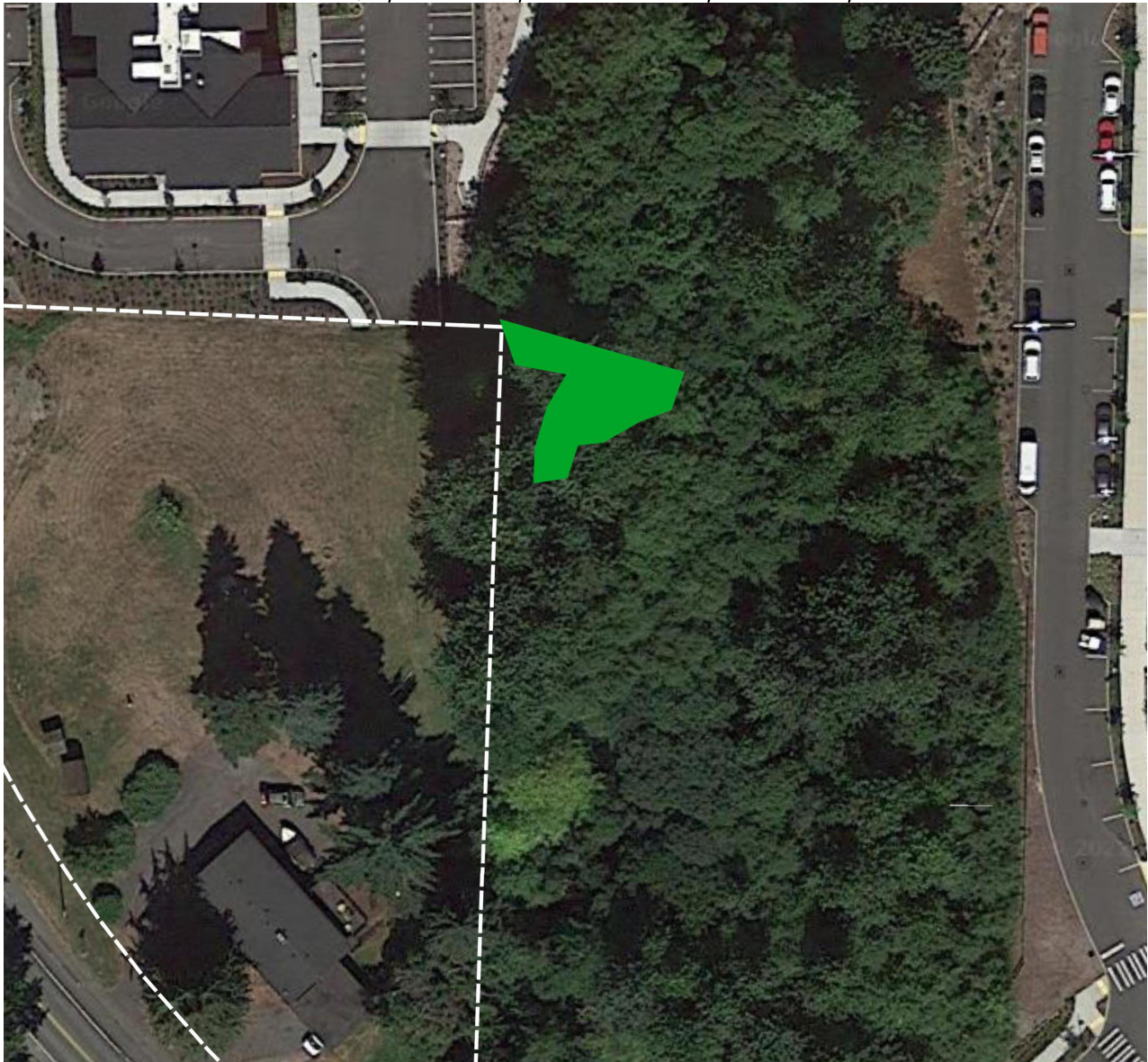


IMAGE SOURCE: AERIAL IMAGERY DERIVED FROM GOOGLE SATELLITE. FIGURES GENERATED BY TALASAEA CONSULTANTS, 2022)

## LEGEND

FORESTED COWARDIN CLASS



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FIGURE #1

COWARDIN CLASSES

MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816

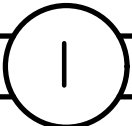
SCALE

NTS

DATE

3-23-2022

REVISED



SW 1/4, SEC. 20, TOWNSHIP 24N, RANGE 6E, W.M.

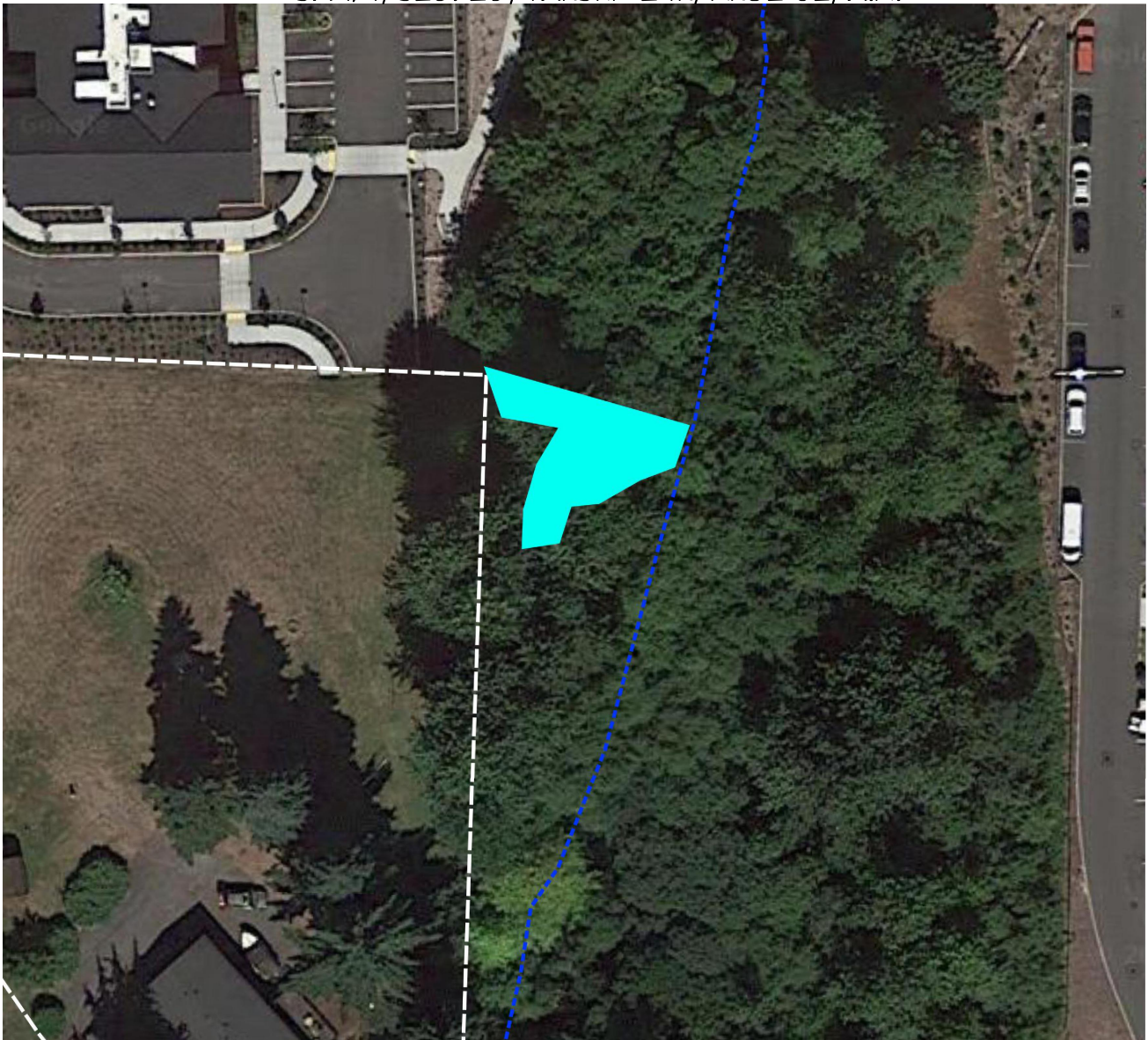


IMAGE SOURCE: AERIAL IMAGERY DERIVED FROM GOOGLE SATELLITE. FIGURES GENERATED BY TALASAEA CONSULTANTS, 2022)

## LEGEND

- SATURATED ONLY
- PERMANENTLY FLOWING STREAM



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FIGURE #2

HYDROPERIOD

MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
3-23-2022		
REVISED		

2

SW 1/4, SEC. 20, TOWNSHIP 24N, RANGE 6E, W.M.

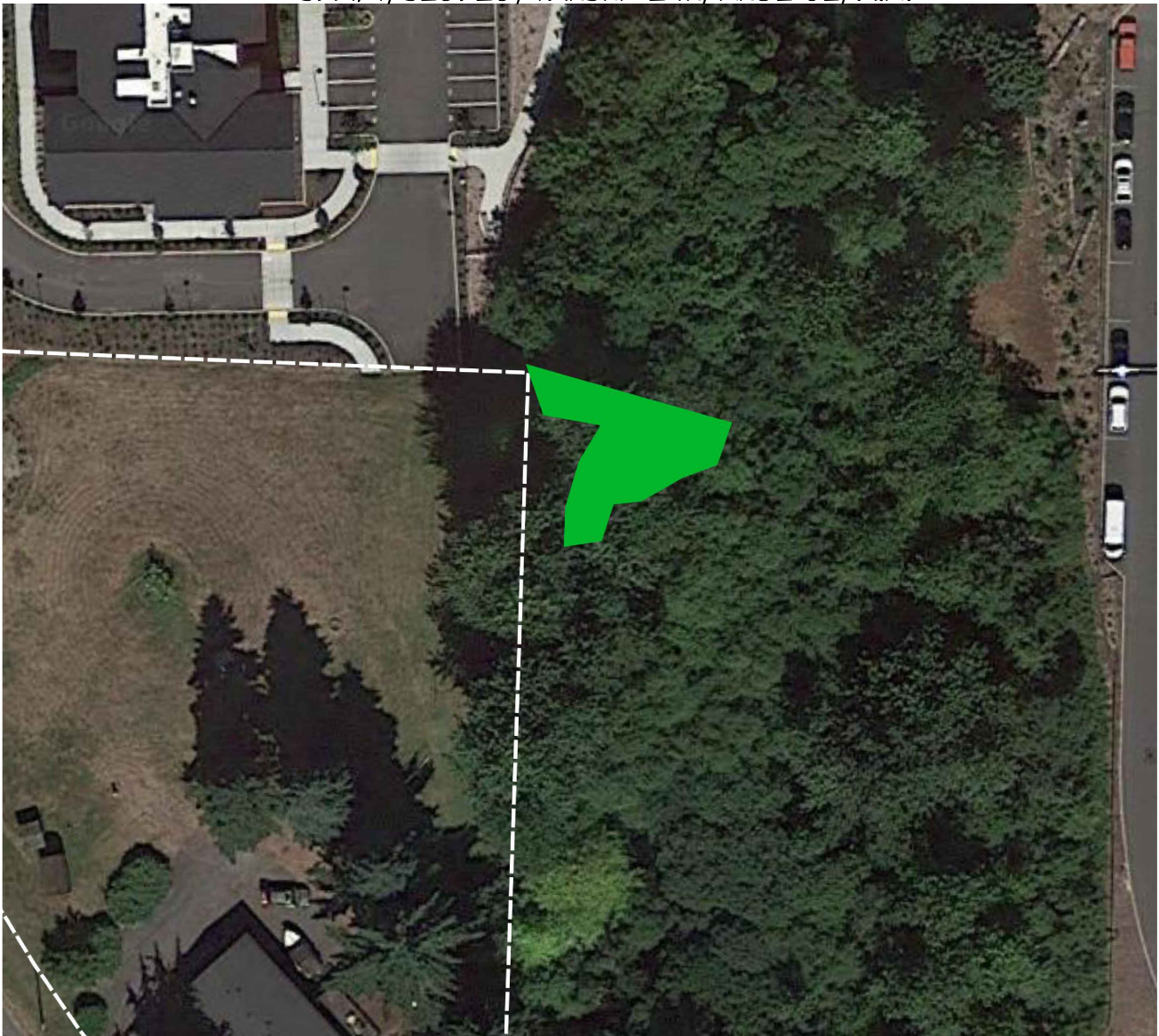


IMAGE SOURCE: AERIAL IMAGERY DERIVED FROM GOOGLE SATELLITE. FIGURES GENERATED BY TALASAEA CONSULTANTS, 2022)

## LEGEND

AREA OF DENSE, UNCUT, HERBACEOUS PLANTS



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### FIGURE #3

PLANT COVER OF DENSE TREES, SHRUBS,  
AND HERBACEOUS PLANTS  
MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
3-23-2022		
REVISED		

3

SW 1/4, SEC. 20, TOWNSHIP 24N, RANGE 6E, W.M.

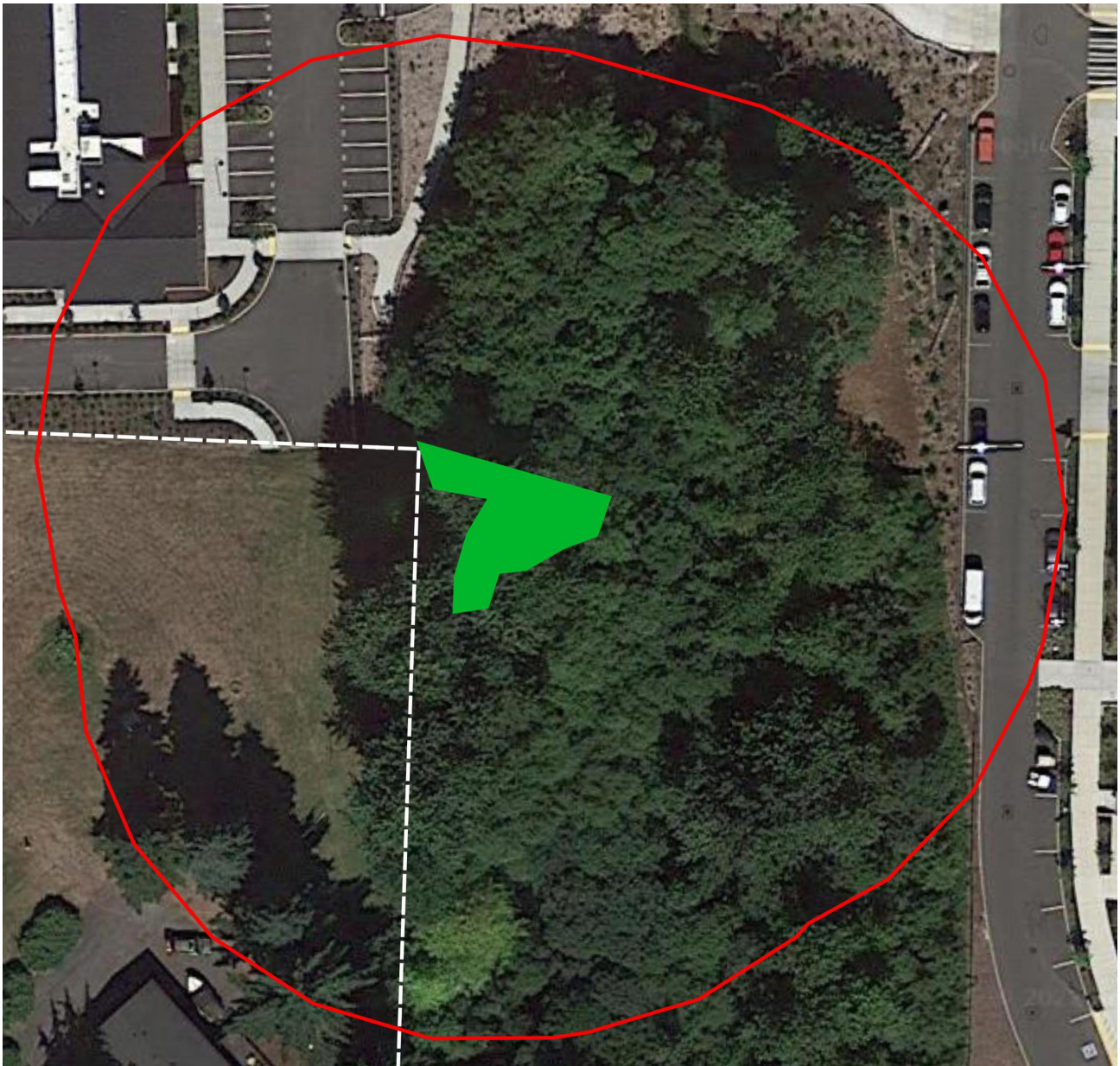


IMAGE SOURCE: AERIAL IMAGERY DERIVED FROM GOOGLE SATELLITE. FIGURES GENERATED BY TALASAEA CONSULTANTS, 2022)

## LEGEND

- 150' BOUNDARY
- APPROXIMATE WETLAND BOUNDARY



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FIGURE #4

150' BOUNDARY  
MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
3-23-2022		
REVISED		

4

SW 1/4, SEC. 20, TWP 24N, RGE 6E, W.M.



IMAGE SOURCE: AERIAL IMAGERY DERIVED FROM GOOGLE SATELLITE. FIGURES GENERATED BY TALASAEA CONSULTANTS, 2022)

## LEGEND

- LOW / MODERATE IMPACT
- ACCESSIBLE / UNDISTURBED HABITAT
- 1KM POLYGON



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FIGURE #5

1-KM POLYGON  
MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
3-23-2022		
REVISED		

5

SW 1/4, SEC. 20, TWSHP 24N, RNGE 6E, W.M.




IMAGE SOURCE: AERIAL IMAGERY DERIVED FROM GOOGLE SATELLITE. FIGURES GENERATED BY TALASAEA CONSULTANTS, 2022)

## LEGEND

### Assessed Water/Sediment

Water

 Category 5 - 303d



**TALASAEA**  
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FIGURE #6

303(d) MAP  
MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
3-23-2022		
REVISED		

6

SW 1/4, SEC. 20, TOWNSHIP 24N, RANGE 6E, W.M.

Search Results - 1,945 Matched Listings									
	ListingID	AU ID	Medium	Parameter	Category	Waterbody Name	WRIA	WQ Improvement Project	WQ Atlas Map Link
<a href="#">View</a>	42139	17110012001213	Water	Bacteria	4B	UNNAMED CREEK (5050 AT W LAKE SAMMAMISH PKWY)	8 - Cedar-Sammamish	Tosh Creek Watershed Restoration Project 4B	<a href="#">42139</a>
<a href="#">View</a>	7464	17110012005104	Water	Bacteria	4A	SWAMP CREEK	8 - Cedar-Sammamish	Swamp Creek Bacteria TMDL	<a href="#">7464</a>
<a href="#">View</a>	13130	17110012000118	Water	Bacteria	4A	SWAMP CREEK	8 - Cedar-Sammamish	Swamp Creek Bacteria TMDL	<a href="#">13130</a>
<a href="#">View</a>	21989	17110012000119	Water	Bacteria	4A	SWAMP CREEK	8 - Cedar-Sammamish	Swamp Creek Bacteria TMDL	<a href="#">21989</a>
<a href="#">View</a>	45282	17110012000565	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO SWAMP CREEK)	8 - Cedar-Sammamish	Swamp Creek Bacteria TMDL	<a href="#">45282</a>
<a href="#">View</a>	72254	17110012000149	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO SWAMP CREEK)	8 - Cedar-Sammamish	Swamp Creek Bacteria TMDL	<a href="#">72254</a>
<a href="#">View</a>	72255	17110012000566	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO SWAMP CREEK)	8 - Cedar-Sammamish	Swamp Creek Bacteria TMDL	<a href="#">72255</a>
<a href="#">View</a>	72256	17110012005113	Water	Bacteria	4A	SWAMP CREEK	8 - Cedar-Sammamish	Swamp Creek Bacteria TMDL	<a href="#">72256</a>
<a href="#">View</a>	74373	17110012005106	Water	Bacteria	4A	SWAMP CREEK	8 - Cedar-Sammamish	Swamp Creek Bacteria TMDL	<a href="#">74373</a>
<a href="#">View</a>	15776	17110019004522	Water	Bacteria	4A	VENEMA CREEK	8 - Cedar-Sammamish	Pipers Creek Bacteria TMDL	<a href="#">15776</a>
<a href="#">View</a>	15798	17110019000562	Water	Bacteria	4A	PIPERS CREEK	8 - Cedar-Sammamish	Pipers Creek Bacteria TMDL	<a href="#">15798</a>
<a href="#">View</a>	74669	17110019004448	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO PIPERS CREEK)	8 - Cedar-Sammamish	Pipers Creek Bacteria TMDL	<a href="#">74669</a>
<a href="#">View</a>	74673	17110019004551	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO PIPERS CREEK)	8 - Cedar-Sammamish	Pipers Creek Bacteria TMDL	<a href="#">74673</a>
<a href="#">View</a>	74674	17110019004566	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO PIPERS CREEK)	8 - Cedar-Sammamish	Pipers Creek Bacteria TMDL	<a href="#">74674</a>
<a href="#">View</a>	74675	17110019004577	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO PIPERS CREEK)	8 - Cedar-Sammamish	Pipers Creek Bacteria TMDL	<a href="#">74675</a>
<a href="#">View</a>	74676	17110019004600	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO PIPERS CREEK)	8 - Cedar-Sammamish	Pipers Creek Bacteria TMDL	<a href="#">74676</a>
<a href="#">View</a>	74677	17110019004619	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO PIPERS CREEK)	8 - Cedar-Sammamish	Pipers Creek Bacteria TMDL	<a href="#">74677</a>
<a href="#">View</a>	7458	17110012000117	Water	Bacteria	4A	NORTH CREEK	8 - Cedar-Sammamish	North Creek Bacteria TMDL	<a href="#">7458</a>
<a href="#">View</a>	7459	17110012000115	Water	Bacteria	4A	NORTH CREEK	8 - Cedar-Sammamish	North Creek Bacteria TMDL	<a href="#">7459</a>
<a href="#">View</a>	45729	17110012000689	Water	Bacteria	4A	UNNAMED CREEK (TRIB TO NORTH CREEK)	8 - Cedar-Sammamish	North Creek Bacteria TMDL	<a href="#">45729</a>
<a href="#">View</a>	45734	17110012000715	Water	Bacteria	4A	WOOD CREEK	8 - Cedar-Sammamish	North Creek Bacteria TMDL	<a href="#">45734</a>
<a href="#">View</a>	45735	17110012000625	Water	Bacteria	4A	CRYSTAL CREEK	8 - Cedar-Sammamish	North Creek Bacteria TMDL	<a href="#">45735</a>
<a href="#">View</a>	45736	17110012000618	Water	Bacteria	4A	FILBERT CREEK	8 - Cedar-Sammamish	North Creek Bacteria TMDL	<a href="#">45736</a>
<a href="#">View</a>	45742	17110012000701	Water	Bacteria	4A	PALM CREEK	8 - Cedar-Sammamish	North Creek Bacteria TMDL	<a href="#">45742</a>
<a href="#">View</a>	45743	17110012000652	Water	Bacteria	4A	NORTH CREEK	8 - Cedar-Sammamish	North Creek Bacteria TMDL	<a href="#">45743</a>
12345678910...Last >>									

IMAGE SOURCE: AERIAL IMAGERY DERIVED FROM GOOGLE SATELLITE. FIGURES GENERATED BY TALASAEA CONSULTANTS, 2022)

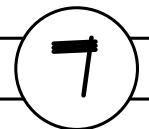


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FIGURE # 7

WRIA 8 TMDLs  
MILANO ISSAQUAH APARTMENTS  
ISSAQUAH, WA

DESIGN	DRAWN	PROJECT
	FH	1816
SCALE		
NTS		
DATE		
3-23-2022		
REVISED		



## **APPENDIX D**

*King County Critical Areas Mitigation Bond Quantities Worksheet, Completed by  
Talasaea Consultants Inc, 2022*

Department of Permitting and  
Environmental Review  
1775 12th AVE NW  
PO Box 1307  
Issaquah Wa, 98027

**Critical Areas Mitigation  
Bond Quantity Worksheet**



**Project Name: Milano Issaquah Apartments**

**Date: 06-SEP-22**

**Prepared by: K. Farmer, Talasaea Consultants**

**Project Number: 1816**

**Location: Issaquah, Washington**

**Milano Issaquah  
Applicant: Apartments LLC, Mr.  
Hossein Khorram**

**Phone: (425) 455-0375**

**PLANT MATERIALS (includes labor cost for  
plant installation)**

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Container, 1 gallon, medium soil	\$11.50	Each	5651.00	shrubs	\$ 64,986.50
PLANTS: Container, 2 gallon, medium soil	\$20.00	Each	135.00	Large shrubs (24" ht)	\$ 2,700.00
PLANTS: Container, 5 gallon, medium soil	\$36.00	Each	248.00	Trees (4-6' ht)	\$ 8,928.00
PLANTS: Stakes (willow)	\$2.00	Each	30.00	4' cutting	\$ 60.00
<b>TOTAL</b>					<b>\$ 76,674.50</b>

**INSTALLATION COSTS ( LABOR, EQUIPMENT, & OVERHEAD)**

Type	Unit Price	Unit	Quantity	Description	Cost
Compost, vegetable, delivered and spread	\$37.88	CY	150.24	3-inches deep	\$ 5,691.12
Irrigation - buried	\$4,500.00	Acre	0.37		\$ 1,676.24
<b>TOTAL</b>					<b>\$ 7,367.36</b>

**HABITAT STRUCTURES\***

ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Logs, (cedar), w/ root wads, 16"-24" diam., 30' long	\$1,000.00	Each	4.00		\$ 4,000.00
Logs (cedar) w/o root wads, 16"-24" diam., 30'	\$400.00	Each	3.00		\$ 1,200.00
Snags - imported	\$800.00	Each	1		\$ 800.00
<b>TOTAL</b>					<b>\$ 6,000.00</b>

\* All costs include delivery and installation

**EROSION CONTROL**

ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Mulch, by hand, wood chips, 3" deep	\$4.32	SY	1802.89		\$ 7,788.48
Topsoil, delivered and spread	\$35.73	CY	450.72	9-inches deep	\$ 16,104.31
<b>TOTAL</b>					<b>\$ 23,892.79</b>

**GENERAL ITEMS**

ITEMS	Unit Cost	Unit	Quantity	Description	Cost
Fencing, split rail, 3' high (2-rail)	\$10.54	LF	335.00		\$ 3,530.90
Fencing, temporary (NGPE)	\$1.20	LF	700.00		\$ 840.00
Signs, sensitive area boundary (inc. backing, post, install)	\$28.50	Each	3.00		\$ 85.50
<b>TOTAL</b>					<b>\$ 4,456.40</b>

**(Construction Cost  
Subtotal) \$ 118,391.04**

**MAINTENANCE AND MONITORING**

NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintenance ranges may be assessed anywhere from 5 to 10 years.

Maintenance, annual (by owner or consultant)					
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 1,600.00	DAY	5.00	(WEC crew)	\$ 8,000.00
Monitoring, annual (by owner or consultant)					
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	\$ 1,440.00	DAY	5.00	(16 hrs @ \$90/hr)	\$ 7,200.00
<b>TOTAL</b>					<b>\$ 15,200.00</b>

**Total Mitigation \$133,591.04**

**Total Security  
(150%) \$ 200,386.57**

## **APPENDIX E**

*Arborist Memo  
Davey Resource Group  
28 August 2022*



Local Office  
18809 10th Ave NE  
Shoreline, WA, 98155  
1-800-966-2021

Corporate Headquarters  
295 South Water Street  
Kent, OH 44240  
800-828-8312

**August 28, 2022**

**Hossein Khorram**  
**Milano Issaquah Apartments**

12224 NE 8th Street, Office  
Bellevue, WA 98005  
(425) 830-6606  
[Milano@milanoapts.com](mailto:Milano@milanoapts.com)

This memo serves to supplement the tree protection standards from the *Arborist Report & Tree Protection Plan* completed by Davey Resource Group (DRG) in September 2020 for Milano Issaquah Apartments at 2300 Newport Way NW, Issaquah, WA. 98027. Specifically, this memo will address the modified tree protection recommendations for **Tree ID#s 4 & 10** to allow for development that will encroach under the dripline slightly. All recommendations herein were made after a site visit on August 17, 2022 by an International Society of Arboriculture (ISA) Certified Arborist (NE-6913A) from DRG.

There are two considerations when evaluating tree root disturbance during construction; the removal of absorption roots and anchoring roots. Removal (or compaction in the area) of the feeder roots can cause immediate water stress and a significant decline in tree health. The ability of a tree to survive root removal is dependent on its current health, its tolerance to drought, and the ability to form new roots quickly. Removal of the larger anchoring roots can lead to structural instability.

The average canopy radius of the surveyed trees was used to determine the Tree Protection Zone (TPZ) of each tree. The TPZ is considered the ideal preservation area of the root zone of a tree. For example; a tree with an average canopy radius of 15 feet has a calculated TPZ diameter of 30 feet from the trunk. The TPZ represents the typical minimum rooting area required for tree health and survival. Minimal impact (5% or less) within this zone is typically acceptable for average to good condition trees with basic mitigation/stress reduction measures.

CRZ measurements are calculated from dripline radius and may not be an accurate representation of the actual dimensions of the root zone of the trees in the field. Many factors can limit root growth and expansion such as degree of slope, present hardscape, heavily compacted areas, and/or tree health.

Root damage/impact can occur from any disturbance to the natural state of the soil within the TPZ, including the addition of fill soil to levels above existing grade. If extensive root damage is expected within this zone, then the tree should be removed. Any work within the TPZ of a tree that will be preserved at the site will require special considerations.

Tree Protection Zone (TPZ) fencing shall delineate the protected area of all retained significant trees at the site. The size of the protected area around the tree shall be equal to the dripline of the tree or at the edge of the Limits of Disturbance (LOD) for development. Reduction of the TPZ closer to the trunk must be accompanied by mitigating measures prepared and supervised by a certified arborist.

- Where proper soil excavation and root pruning takes place, the TPZ fencing may be installed closer to the trunk and will need to be determined by the site arborist at the time of installation.
- Tree protection fencing will be modified to allow for reasonable encroachment into the TPZ so that site work can be completed.
- TPZ shall be a minimum of 6 foot high chain link fence and mounted on two inch diameter metal posts at no more than 10-foot spacing. Movable barriers of chain link fencing secured to cement blocks may be substituted for “fixed” fencing if the Project Arborist agrees that the fencing will have to be moved to accommodate certain phases of construction.
- A warning sign shall be prominently displayed on each fence. The sign shall be a minimum of 8.5 x 11-inches and clearly state: “WARNING – Tree Protection Zone - This fence shall not be removed and any injury to this or these trees is subject to penalty.”
- TPZs shall be constructed in such a fashion as to not be easily moved or dismantled and shall remain in place for the entirety of the project and only removed, temporarily or otherwise, by an ISA Certified Arborist after submission and approval of intent.

Prior to construction the Project Arborist will supervise and verify the following tree protection measures are in place and comply with the approved Tree Protection Plan prior to any construction activities at the site

- The LOD for development shall be determined and marked in the field where it falls within or 0-5’ outside the TPZ. A pneumatic air tool should be used to excavate the soil along this delineation. A certified arborist can then prune those roots that encroach into the area of development. Pruning rather than ripping and tearing roots allows the tree to compartmentalize the wounds which limits the spread of decay and promotes new root growth. The use of machinery to remove roots should be avoided. A reasonable effort should be made to preserve as many tree roots, especially those greater than 2” in diameter, as possible.
- If the soil within the TPZ is compacted, then aerate the soil using a pneumatic air tool to alleviate compaction and promote the flow of oxygen and water to the roots.
- A 6” layer of coarse mulch or wood chips is to be placed beneath the TPZ of the retained trees. Mulch is to be kept 12” from the trunk.
- Where possible, add a 12-inch layer of wood chips over any parts of a TPZ not protected by the fencing. This aids in reducing the impact of soil compaction from heavy equipment during the upcoming construction activities.
- Prune all selected trees, as necessary, to remove existing deadwood and stubs. This eliminates potential future vectors of decay. Clean cuts made at branch collars allow the tree to undergo its natural process of compartmentalizing wounds, preventing the spread of decay. During the pruning process, remove a minimal amount of live foliage as possible and no more than 25% removal in any one season while allowing for the safe and unimpeded operation of construction activities.
- Trees that have been identified in the site inventory as posing a health or safety risk may be removed or pruned by no more than one-third. Pruning of existing limbs and roots shall occur under the direction of the Project Arborist.
- Installation of the TPZ fencing location and construction.
- During construction activities, ensure retained trees receive the weekly watering equivalent to the amount of average natural rainfall for the specific development site. When the amount of natural rainfall received is less than the historical average, manual watering methods should be employed. The on-site Certified Arborist can make the determination when additional manual watering is necessary.

#### **Tree ID# 4**

Tree ID# 4 is a retained tree where rights-of-way (ROW) expansion, existing asphalt removal, and the base of an added staircase will encroach under the dripline (TPZ) of the tree. Disturbances in the calculated TPZ is not likely to impact the long-term health or viability of the tree if the following recommendations are followed:

- The LOD for the ROW expansion on the west side of the tree and for the staircase to the north should be delineated in the field and a pneumatic air tool should be used to excavate the soil along these delineations so that the roots can be properly pruned. A trench ~6 inches wide and 12 inches deep should be excavated.
- Standard TPZ recommendations should then be completed and inspected by a certified arborist and should include pruning to remove low branches that may be injured by construction equipment, supplemental irrigation to compensate for the diminished root system, and a 6" layer on wood chips within the TPZ fencing. TPZ fencing will be located along the root pruning trench.
- The asphalt driveway to the north of the tree will remain in place and utilized for construction vehicle access. Following construction, the asphalt driveway will be removed to give way for construction of Through Block Passage CIP concrete staircase.
- A 10' wide cast-in-place concrete staircase connecting the Through Block Passage to Newport Way NW will be constructed just outside the reduced CRZ

#### **Tree ID# 10**

Slight encroachment into the calculated TPZ of Tree ID# 10 is expected to occur for building footings along the north and west sides. Building footings will be located along the edge of the dripline to the west. A slight reduction of the TPZ to the north is needed to allow for the building footings on this side. Additionally, there is currently a septic tank within the TPZ that requires removal. The following recommendations are provided to reduce the impacts to tree health:

- The LOD for the building footings on the west and north sides of the tree should be delineated in the field and a pneumatic air tool should be used to excavate the soil along these delineations so that the roots can be properly pruned. A trench ~6 inches wide and 12 inches deep should be excavated.
- Standard TPZ recommendations should then be completed and inspected by a certified arborist and should include pruning to remove low branches that may be injured by construction equipment, supplemental irrigation to compensate for the diminished root system, and a 6" layer on wood chips within the TPZ fencing. TPZ fencing will be located along the root pruning trench.
- If needed, the TPZ fencing could be reduced to allow for construction access. In this instance, the TPZ fencing will be adjusted and a 12 inch layer of wood chips will be installed and approved by a certified arborist along with plywood or steel plates over the portion of the TPZ where vehicular traffic is anticipated to occur.
- Removal of the septic tank within the TPZ will take place when appropriate.
  - The soil will be excavated using a pneumatic air tool taking care to preserve the root system of the tree.
  - To prevent root desiccation during this process, the roots should be protected with wet burlap or covered in soil or mulch if they are exposed for more than 3 hrs. Timing of this phase should be completed in the cooler wet season.
  - Once located, the septic tank will be removed with minimal root loss, if feasible. Recommendations for mitigation, retention, or removal of the tree will be made by the supervising certified arborist following the removal of the septic tank and dependent on the quantity and size of any necessary root pruning.

- Backfilling material will be based on a site soil sample and be completed in such a fashion as to maintain root location and depth. Structural soil will be utilized where the nature walk will be installed.
- The asphalt driveway to the west of the tree will remain in place and utilized for construction vehicle access. When appropriate, the asphalt driveway will be removed.

The following conditions shall be avoided during all phases of development.

- Allowing run off or spillage of damaging materials into the approved TPZ.
- Storing construction materials or portable toilets, stockpiling of soil, or parking or driving vehicles within the TPZ.
- Cutting, breaking, skinning, or bruising roots, branches, or trunks without first obtaining authorization from the Project Arborist.
- Discharging exhaust into foliage.
- Securing cable, chain, or rope to trees or shrubs.
- Trenching, digging, tunneling or otherwise excavating within the CRZ or TPZ of the tree(s) without first obtaining authorization from the Project Arborist

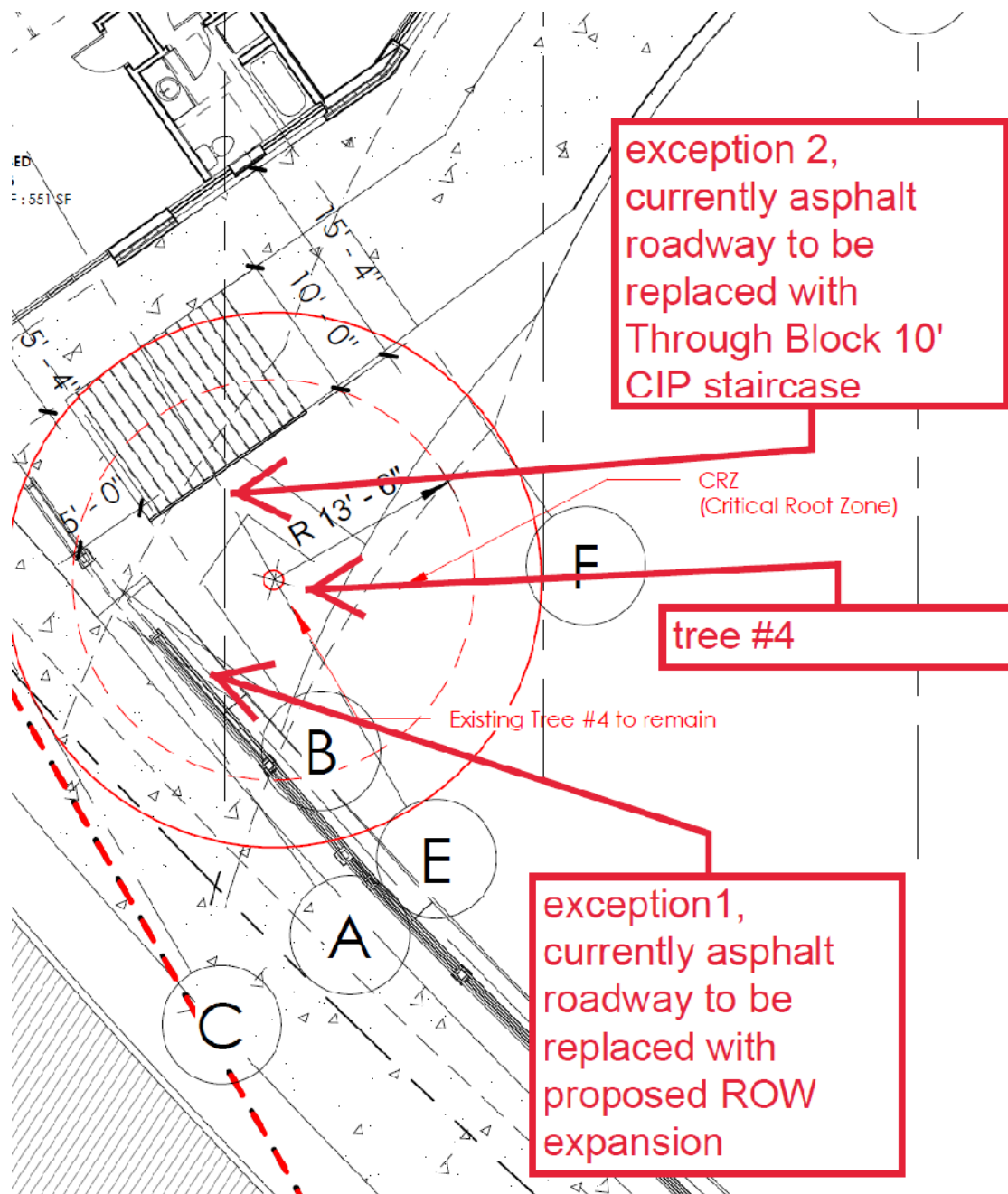
A successful tree preservation effort continues well past the conclusion of development activities. The preserved trees should be re-inspected for signs of distress that may have gone undetected during construction and mitigation measures assigned accordingly. Any soil compaction that occurred within a CRZ should be remedied with aeration. The preserved trees should be placed on a seasonal care plan for two years that includes both monitoring and routine soil inoculation treatments designed to stimulate new root growth. Annual monitoring should continue for several years, as the effects of construction may take anywhere from 3 to 7 years to become visibly apparent.

Sincerely,



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(ENCL.)

**Image 1. Site plan showing the LOD for development and the encroachment into the TPZ on the north and west edge of the TPZ fencing for Tree ID# 4. Encroachment for excavation is not likely to affect long-term health or viability of the tree as long as TPZ reduction and excavation follow the guidelines outlined in this memo.**



[illegible]